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JUNE 1, 1898.

PART I.

ORIGINAL COMMUNICATIONS.

ART. XXIII.—*Clinical Report of the Rotunda Lying-in Hospital, for One Year, November* 1, 1896, *to October* 31, 1897.* By R. DANCER PUREFOY, M.D., Master; T. HENRY WILSON, HENRY JELLETT, R. P. R. LYLE, Assistant Masters.

DURING the twelve months comprised in this Report 1,825 women were admitted to the maternity department, 1,448 were confined, 377 were discharged not in labour, and 2 died.

TABLE No. I.—*Admissions to Maternity Department*, 1896–7.

—	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sep.	Oct.	Total
Total number of Deliveries -	119	120	108	108	86	129	106	118	139	119	113	121	1,386
Abortions - -	6	6	2	4	7	7	3	5	7	5	5	5	62
Total cases treated	...	...	...	...	...	...	...	...	...	...	...	...	1,448
Patients admitted, but discharged not in Labour -	34	29	31	24	40	30	24	32	41	36	25	31	377
Total Admissions	159	155	141	136	133	166	133	155	187	160	143	157	1,825

* Read before the Section of Obstetrics in the Royal Academy of Medicine in Ireland, on Friday, April 27, 1898.

We have included in this table all who have been admitted to the maternity wards, a number of whom were detained in the hospital for varying periods, and discharged as they were not then in labour.

TABLE No. II.—*Dispensary for Outdoor Patients.*

Number of First Attendances	Number of Repeated Attendances
4,655	5,585

TABLE No. III.—*Showing Number and Nature of Cases Treated in the Extern Maternity*, 1896–97.

Total number of cases		2,007	Inversion of uterus		1
Abortions		267	Occipito-posterior		22
Curetting for abortion		69	Moles—		
Accidental hæmorrhage		3	Vesicular		1
Placenta prævia		8	Carneous		5
Post-partum hæmorrhage—			Hydrocephalus and spina bifida		2
Atonic		12	Hydramnios		1
Traumatic		3	Mania acuta		2
Adherent placenta		19	Rupture of uterus and decapitation		1
Breech		49	Imperforate anus		2
Footlings		5	Hour-glass contraction		1
Brow		1	Children dead—		
Face		3	Recent	47	
Transverse		5	Macerated	11	
Shoulder		2	Putrid	3	
Twins—			Premature	12	
Male	9		Non-viable	31	
Female	7				104
Male and Female	3		Mortallty—		
		19	Pneumonia	1	
Triplets—			Placenta prævia	1	
F. F. M. / F. F. M.		2	Inversion of uterus	1	
Forceps		37	Pulmonary embolus	1	
Prolapse of cord		5	Cardiac disease	1	
Version		7			5

ACCOUNT OF DEATHS IN EXTERN MATERNITY.

CASE I.—E. B., aged twenty-six, 3-para. Delivered November 7th, 1896. Normal labour; had normal puerperium till seventh day, when it was found on visiting her that her pulse was 160, and temperature 104·2° F., with foul lochia. She was douched and given strychnin and digitalis, with whisky ʒxii.

Under this treatment she improved gradually till November 19th, when acute croupous pneumonia supervened, and she died on November 21st, being the fourteenth day.

Case II.—M. S., aged thirty-four, 8-para. Delivered July 31st, 1897. Placenta prævia lateralis. When first seen she was collapsed from hæmorrhage, and still bleeding; os two and a half inches in diameter, vertex presentation, membranes unruptured. As the patient was in labour, the membranes were ruptured; the hæmorrhage however continued, and accordingly internal version was performed and a foot brought down; hæmorrhage then ceased. Patient delivered herself of a living child. As collapse continued a whisky enema was given and also whisky by the mouth; she, however, sank and died half-an-hour after delivery.

Case III.—J. S., aged thirty-eight, 4-para. Delivered September 22nd, 1897. Five months' miscarriage. No interference. An aortic systolic murmur was diagnosticated at time of confinement. Patient was seen by a student on the tenth day, who reported her quite well; on the twelfth day she suddenly got seriously ill, and sent for dispensary doctor, but died before his arrival.

Case IV.—M. G., aged forty, 8-para. Delivered September 24th, 1897. Breech presentation—was attended by a student; third stage, 1 hour and 20 minutes. Patient died fifteen hours later; *post-mortem* examination revealed a complete inversion of the uterus.

Case V.—M. T., aged twenty-two, 1-para. Delivered October 11th, 1897, by forceps on account of prolonged second stage. She was seen two days before delivery, when she had a temperature 103° F., pulse 120, respirations 36, with acute bronchitis and signs of phthisis. Temperature remained high, and on the evening of fifth day she suddenly developed puerperal mania; after administration of ½ grain morphin hypodermically she passed a quiet night. She had a second maniacal attack next day, which, however, soon passed off and did not recur. All her symptoms improved rapidly till the ninth day, when her condition was normal, and continued so until five days later, when, while sitting up in bed, she suddenly fell dead. Pulmonary embolus.

INTERESTING CASES IN EXTERN MATERNITY.

Case I.—M. M., aged thirty-five, 4-para. Delivered November 6, 1896. Nine hours in labour; triplets—all vertex—two females and one male, all alive; one placenta.

Case II.—M. D., aged thirty-eight, 8-para. Delivered November 17th, 1896. Four hours in labour; triplets—vertex, breech and vertex—two females and one male, all alive; one placenta, very large; three sacs—the second and third having to be ruptured. Patient received the Queen's Bounty.

Case III.—M. C., aged thirty-one, 3-para. Delivered November 26th, 1896. Transverse presentation, 7½ months' pregnancy. There was slight ante-partum hæmorrhage. Right shoulder and hand presented. Patient in strong labour, and in severe pain, the shoulder being fixed at the pubes; the trunk, limbs, shoulders, and head were expelled in succession. Child dead.

Case IV.—M. D., aged thirty, 7-para. Delivered April 6th, 1897. Neglected shoulder presentation, complicated with rupture of uterus. Full time pregnancy. Decapitation. Patient, who was of very intemperate habits, complained of having received a severe kick on the lower part of the abdomen on evening of April 4th; during the following two days she sent on three occasions to the hospital, but not until the third occasion would she allow of any examination whatsoever. She had then been in strong labour for five and a half hours, with severe pain in the hypogastrium; a hand was seen protruding from the vulva, the membranes being intact. The extern maternity assistant, Dr. Lyle, was sent for, and, on arrival (the membranes having in the meantime ruptured) examined the patient under an anæsthetic, and, finding the shoulder well down in the pelvis with the uterus tightly contracted down on the child, refrained from any interference, but sent for Dr. Wilson, the Assistant-Master on duty.

The child was lying in an oblique position, dorso-anterior, with head to right; the left shoulder was firmly fixed in the pelvis, with corresponding hand and forearm protruding at the vulva; all the ribs of left side were easily felt bulging down into vagina. On passing hand into uterus that organ was found ruptured on right side; the greater part of head, however, was held within the uterus by the impaction of the shoulder; the intestines could be felt with the tips of the fingers; the umbilical cord was flaccid and pulseless.

Decapitation was performed with Braun's blunt hook; after which the body of the child was easily delivered by traction on the arm, and the head by pressure on the fundus, with the left hand guiding it, in order to protect maternal soft parts.

The placenta was removed manually.

The rent in the uterine wall was about three inches in length, situated in lower segment to the right and posterior; a thick plug of iodoform gauze was passed through the rent into the peritoneal cavity, for the purpose both of drainage and to keep the intestines out of the wound, the lower end of the gauze being in the vagina. A hypodermic of ergotinin was given, and the patient, on account of destitution, was removed to the hospital. She made an uninterrupted recovery, the gauze was removed in twenty-four hours; her temperature never exceeded 99·2° F., and she was discharged well on the 22nd of April.

We consider that rupture of the uterus often takes place without any of the alarming symptoms which are recorded in the text books, and frequently is diagnosticated only when the fingers are passed into the uterus to remove the placenta, or with some other object.

The treatment adopted in this case appears to be most satisfactory in cases of uterine rupture uncomplicated by severe hæmorrhage, or the laceration of any other viscus.

TABLE No. IV.

Cases treated in Intern Maternity during the Year 1896-97.

Total number of cases	1,448	Version	8
Primiparæ	519	Perforation and craniotomy	2
Abortions	62	Eclampsia	1
Pelvic presentations	54	Insanity—Mania	4
Shoulder and upper extremities	2	Melancholia	1
Face	3	Phlebitis	1
Brow	1	Rupture of uterus	1
Hydramnios	4	Myxoma chorii	1
Occipito-posterior	27	Intra-uterine fracture of forearm	1
Twins—		Rupture of cervix and vagina	4
Male 6		Laceration of perineum	230
Female 6		Meningocele	2
Male and Female 10		Children died in hospital	39
	22	born dead—	
Prolapse of funis	8	Recent 21	
Placenta prævia	4	Macerated 19	
Accidental hæmorrhage	8	Premature 23	
Post-partum hæmorrhage	12	Putrid 2	
Adherent and retained placentæ (removed manually)	17	Non-viable 13	
			78
Myoma	3	Morbidity	78
Deformed pelvis	4	Mortality—	
Induction of premature labour	3	Rupture of uterus 1	
Forceps	56	Septic endometritis 1	
			2

TABLE No. V.—*Deaths.*

NAME	Admitted	Delivered	Died	Cause of Death
A. M'D.	Dec. 23,'96	Dec. 28	Dec. 31	Rupture of uterus and bladder. Craniotomy.
L. D.	Feb. 8, '97	Feb. 8	Feb. 21	Septic endometritis.

We regret to have to record two deaths, both of which we ascribe to puerperal causes.

CASE I.—For account of death of A. M'D., see under heading Perforation and Craniotomy, page 472.

CASE II.—L. D., aged twenty-eight, 2-para. Admitted, 7th February, 1897. Patient suffering from tertiary syphilis, ulcers on both legs, with extensive sloughing ulceration of labia majora. Scrupulous cleanliness was observed, as far as possible, previous to delivery. No vaginal examinations were made. Delivered next day. Eighteen hours in labour, child still-born; third stage 35 minutes, placenta and membranes came away entire. The vulva was dusted with iodoform. On the morning of the second day her temperature rose to 101° F. The lochia was slightly fœtid, a vaginal douche was given, but the evening temperature was 102·6° F.; the uterus was douched, but nothing abnormal was noticed. ℞. Quin. sulph. gr. v., every fourth hour. After this the temperature fell for three days. On the sixth morning the temperature rose to 103° F., and pulse to 115, and in the evening to 105° F., pulse 120. The uterus was curetted with Rheinstädter's spoon, but very little came away; the lower part of the vagina was of a greyish colour, covered with a large puerperal ulcer, which was dusted with iodoform. The temperature dropped two degrees for 48 hours, but then rose and fluctuated between 103° F. and 105° F.; the pulse varied from 115 to 146, until the time of her death.

All through the lochia were scanty, except when the uterus was douched, which was done daily. Patient was on from ʒviij. to ʒxx. whisky daily, but it had little or no effect on the pulse-rate. She became exhausted and died on the 13th day.

Post mortem examination showed the uterus slightly enlarged, and covered by a grey, sloughing membrane, which extended into the vagina. Other organs healthy.

From the *post-mortem* examination of this case we think

that, in addition to curetting and douching, it might have been beneficial had the uterus been plugged with iodoform gauze, as recommended by Dührssen.

TABLE No. VI.—*Morbidity.*

Temperature	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct	Total
100·8° F. and under 102·2° F.	7	1	8	5	1	3	3	1	9	2	3	9	52
102·2° F. and under 104° F.	2	3	0	3	1	1	1	—	1	3	3	4	22
104° F. and under 105° F.	1	—	—	—	—	—	—	—	—	—	—	—	1
105° F. and over.	—	—	—	1	—	—	—	—	—	—	2	—	3
Total monthly morbidity	10	4	8	9	2	4	4	1	10	5	8	13	78

There were, during the twelve months, 78 cases in which the temperature rose on one or more occasions to 100·8° F. or over. Four of these followed macerated fœtus, 5 were due to puerperal ulcer, 3 to mastitis, 2 to syphilitic sores, 1 to pneumonia, 2 to puerperal mania, and 1 to advanced phthisis. There were only 15 cases in which it was considered necessary to administer a uterine douche; for the remainder an aperient or a simple vaginal douche of creolin proved sufficient.

FACE AND BROW PRESENTATIONS.

All the face presentations terminated naturally. There was one brow presentation in the extern maternity which terminated as a face, on the forehead of which there was a small caput. There was also one brow presentation in the intern maternity; it was a seven and a half months' pregnancy, and was delivered by forceps on account of delay in the second stage. It was born as a vertex.

TABLE No. VII.—*Application of Forceps.*

I.-para. -	49	V.-para. -	1
II.-para. -	4	VII.-para. -	1
IV.-para. -	1		

SUB-TABLE A—*Indications for Application.*

Delay in 2nd stage over four hours* - - - -	45
Uterine inertia - - - - - -	1
Prolapse of cord - - - - - -	2
Brow - - - - - - -	1
Twins—uterine inertia, 1st child - - - -	1
Threatened death of fœtus - - - -	4
Acute mania - - - - - -	1
Threatened rupture of uterus - - - -	1

* There were four occipito-posterior positions.

SUB-TABLE B.

Ages of Primiparæ.

17–25 - -	20
26–30 - -	20
31–35 - -	4
36–45 - -	5

SUB-TABLE C.

Result to Child.

Alive -	52
Dead -	4

The percentage application of forceps in the extern maternity was 2·12 per cent., and in the intern 4·04 per cent. This great difference is most probably due to the fact that the proportion of primiparæ to multiparæ is far greater in the intern maternity than in the extern.

Forceps were applied in cases of delay of four hours in the second stage, with material benefit to the mother, and greater safety to the child; and we consider that the results obtained—more particularly as regards the life of the child—amply justify us in not delaying longer.

PERFORATION AND CRANIOTOMY.

Perforation and craniotomy were performed in two cases.

CASE I.—A. M'D., 6-para, admitted December 23rd, 1896. Her first four children were born dead at full term; fifth was a footling presentation, and the head was delivered with extreme difficulty, the child being alive. On 27th December, at 8 o'clock, p.m., she came into labour, and at 11 o'clock the os was almost

fully dilated, with the head above the brim. She had good pains all night, but her symptoms gave no cause for anxiety till next afternoon, when her pulse began to rise, the temperature remaining normal, and the head still above the brim.

At 3 p.m., she suddenly became very collapsed, her temperature fell, her pulse became rapid and feeble, and it was thought advisable to deliver at once. The fœtal heart could not be heard. Craniotomy was performed, and the child extracted easily. During the evening her pulse became very rapid and intermittent—140 to 150. The lochia were normal in amount. The collapse continued, and she died on December 31st, 1896.

Post-mortem examination showed a considerable amount of hæmorrhage into the abdominal cavity, and a large hæmatoma the size of a cocoa-nut in the left broad ligament. There was a large laceration, several inches in length, running transversely across the fundus of the bladder; and a second circular contused laceration extending from the lower part of the posterior wall of the bladder into the lower uterine segment. This second laceration was most probably caused by the parts becoming nipped between the descending head, and an osseous projection on the posterior aspect of the symphysis. This projection was about the size of a hazel-nut and materially narrowed the true conjugate.

Case. II.—M. F., aged forty, 8-para. Admitted March 2nd, 1897, from extern maternity in strong labour for many hours previously. The os was three-fifths dilated; head not engaged; abdomen very prominent, and child dead. Craniotomy was performed with Auvard's instrument. Extraction was easy, and convalescence normal.

INDUCTION OF PREMATURE LABOUR.

Premature labour was induced in three cases—twice for contracted pelvis, and once for cardiac disease. In all three cases Krauze's method, the introduction of bougies, was used. It was successful in two cases, but in the third, that of cardiac disease, the bougies failed to bring on labour, although inserted twice.

Ten laminaria tents were then placed in the cervix, but, as they also failed to bring on labour, bi-polar version was performed, and a leg brought down. The child was born alive, but died in thirty minutes. The other children went out well. In every case convalescence was normal.

TABLE No. VIII.—*Prolapse of Funis.*

Name	Treatment	Result to Child	Presentation	Period of Pregnancy	Remarks
M. B.	Version .	Alive	Vertex	Full time	Asphyxia pallida. Schultzed successfully.
J. K.	Version .	Alive	Vertex	Full time	Os nearly fully dilated. Reposition failed.
A. B.	Forceps .	Alive	Vertex	Full time	Membranes ruptured some time.
E. S.	Forceps .	Alive	Vertex	Full time	Os fully dilated.
B. W.	Left to nature	Alive*	?	6th month	Placenta prævia lateralis.
N. S.	Bi-polar podalic version	Dead	Transverse	6th month	Reposition failed. Os admitted 3 fingers.
T. S.	Left to nature	Dead	?	5th month	—
T. F.	Traction with finger	Alive	Breech	8th month	First of twins

* Died a few minutes after.

TABLE No. IX.—*Accidental Hæmorrhage.*

Name	Treatment	Period of Pregnancy	Result to Child	Remarks
M. M'G.	Left to nature	8th month	A.	Was in strong labour; hæmorrhage not severe.
M. C. .	Vaginal plug and binder	8th month	D.	Breech presentation.
M. L. .	Membranes ruptured	8th month	A.	Hæmorrhage considerable; os ¾ dilated; labour proceeded rapidly after rupture of membranes.
N. E. .	Vaginal plug and binder	7th month	D.	High temperature on admission; plug left 4 hours, and on removal child at once expelled by strong pains; good recovery.
M. H. .	Membranes ruptured	8th month	A.	Footling; os ¾ dilated; hydramnios; good pains.
M. A. F.	Vaginal plug and binder	9th month	D.	Strong labour in 5 hours; plug removed; child, placenta, and large amount of clot came away.
K. T. .	Membranes ruptured	7th month	A.	Os fully dilated on admission.
E. K. .	Membranes ruptured	9th month	A.	Admitted in 2nd stage; delivery rapid.

There were 8 cases of accidental hæmorrhage admitted. In four of these, as the patient was in strong labour and the first stage well advanced, rupture of the membranes was found to be sufficient treatment. In three cases, however, the hæmorrhage was so severe that the vagina had to be plugged with boiled cotton-wool—after the usual aseptic precautions had been taken—and a tight abdominal binder with perineal band applied, to check the hæmorrhage and bring on labour.

In every case the mother made an uninterrupted recovery; but in those cases in which plugging had been performed the children were still-born. In these cases the hæmorrhage was so severe that in all probability the placenta had been completely detached. One patient only had a temperature of or above 100·8° F., and this, which she had on admission, fell the second day, and the puerperium continued uneventful.

From our experience of the treatment of accidental hæmorrhage, where the bleeding is severe and labour pains are absent, we are convinced that the firm application of the vaginal plug, combined with the use of a tight and carefully applied abdominal binder, with perineal band, is the only treatment that we can recommend with any confidence.

TABLE NO. X.—*Placenta Prævia.*

Name	Variety	Result to Child	Presentation	Period of Pregnancy	Treatment and Remarks
K. M'C.	Lateralis	D.	Vertex	8½ months	Bipolar version, and foot brought down
L. T.	Marginalis	D.	Vertex	8th month	Do. Do., considerable hæmorrhage into sac
D. D.	Centralis	D.	Vertex	8th month	External version, placenta perforated, and foot brought down
T. D.	Lateralis	D.	Vertex	8th month	Version, and foot brought down, delivered herself in two hours. High temperature, 101° F., evening of 4th day

There were four cases of placenta prævia, in all of which version was performed, and the subsequent delivery left to

nature. Two of these cases are included in our table of morbidity.

The patient L. T. showed a temperature of 103° F. immediately after delivery, that was within an hour after version; within twelve hours the temperature was normal, and continued so throughout the puerperium.

The second patient who showed morbidity, T. D., had a rise of temperature to 101° F. on the evening of the fourth day; a vaginal douche was given, and her temperature at once fell, and continued normal until she was discharged well on the tenth day.

TABLE NO. XI.—*Post-partum Hæmorrhage.*

Name	Variety	Cause	Treatment	Remarks
A. M'A.	Atonic	Retained placenta	Manual removal	Twins
K. S.	Do.	Adherent placenta	Do.	Uninterrupted recovery
K. G.	Do.	—	Expression of placenta and hypodermic of ergot	Do.
M. S.	Do.	Retained membranes	Manual removal	Temperature rose slightly on 2nd day
L. G.	Do.	Do.	Do.	Uninterrupted recovery
T. Y.	Do.	Retained cotyledon of placenta	Do.	Do.
M. M.	Do.	—	Uterus douched and plugged with iodoform gauze	Do.
C. D.	Do.	Retained membranes	Manual removal	Do.
B. C.	Do.	Protracted labour; forceps	Hot uterine douche	Do.
A. L.	Do.	Retained membranes	Manual removal	Do.
R. B.	Do.	Adherent placenta	Do.	Do.
A. M.	Do.	Twins	Hot vaginal douche and ergot	Do.

ECLAMPSIA.

One case of eclampsia was treated during the year.

CASE.—The patient, M. G., aged eighteen, 1-para, was admitted on October 4th, 1897, when seven months pregnant. Her urine was scanty and highly albuminous, with considerable œdema of the lower extremities. She also complained of temporary loss of vision, and was very irritable and excited. She was given, at 6 50 p.m. on day of admission, gr. ½ morphin hypodermically; as the excitability continued, and as she had had two typical eclamptic seizures, she was given at 10 p.m. same evening gr. ¼ morphin, which was repeated at 10 30 o'clock p.m. As a purgative, mist. sennæ co. was administered shortly after admission, and, as this did not act, croton oil (♏ii.) was given with satisfactory results.

After the last hypodermic of morphin the patient was almost maniacal for several hours. She gradually became quieter, and finally fell asleep, and slept the whole of the next day. After this she rapidly improved, and three days after admission labour set in naturally, and she delivered herself of a living child, weighing 3½ lbs. Her temperature rose to 101° F. on evening of third day after delivery, and was 100·8° F. next evening, but after a uterine douche it fell to normal, and remained so.

During the first twenty-four hours in hospital she only passed ℥xiv. of highly albuminous urine, which increased to ℥xxi. during the next twenty-four hours, and to ℥lviii. during the next twelve hours, remaining at about ℥l. every twelve hours for three or four days following. It was frequently examined, and during the puerperium the amount of albumen rapidly diminished, there being only a trace of albumen in it the day she was discharged.

Patient and child left the hospital on eighth day after delivery, and were seen at the hospital six weeks later, both perfectly well.

ABORTIONS.

There were 62 cases of abortion admitted during the year. Some of these required no special treatment; only those in which the hæmorrhage was severe, or in which any part of the ovum was still retained, were interfered with. In all these cases the treatment adopted was the emptying of the uterus—if possible by expression of the contents. This failing, and the os being sufficiently dilated, the ovum was

removed by the finger, or if the latter condition was not fulfilled, by Rheinstädter's curette.

In one case the cervix was cicatricial owing to a previously performed Schröder's amputation, and as a result there was stenosis of the external os; it was dilated with Hegar's dilators, and a four months' fœtus extracted by means of Schultze's spoon-forceps. The patient's temperature rose on the evening of the sixth day to 104·6°, and after a uterine douche fell to normal and remained so.

In another case the patient was admitted with hæmorrhage, which had been constant for two months previously. The uterus was up to the umbilicus, and she stated that she was three and a half months' pregnant; no fœtal parts could be felt. The os was dilated by means of laminaria tents, a large quantity of clots escaped, and the patient coming into labour was delivered of a four months' fœtus. Convalescence normal.

In another case the patient was admitted in the fourth month of pregnancy, with a fœtid discharge. The membranes were ruptured, and the fœtus could be felt lying partially in the dilated cervical canal. As the os externum was only the size of a threepenny piece it was divided bilaterally, and the fœtus extracted by Schultze's spoon-forceps. Free hæmorrhage followed its removal; the uterus was curetted and plugged with iodoform gauze. Convalescence normal.

In another case the remains of an incomplete abortion were removed from one horn of a bicornuate uterus.

ICTERUS NEONATORUM.

There were about 20 cases of this affection during the year. They were all of a mild and transient nature, and in every case the jaundice had disappeared before the seventh day.

OPHTHALMIA NEONATORUM.

This was of very rare occurrence, owing, no doubt, to the prophylactic use of 1 per cent solution of nitrate of silver, instilled, immediately after birth, into the eyes of every child born in the institution.

PLATE I.—A case of Hydrencephalocele. The infant lived ten days.

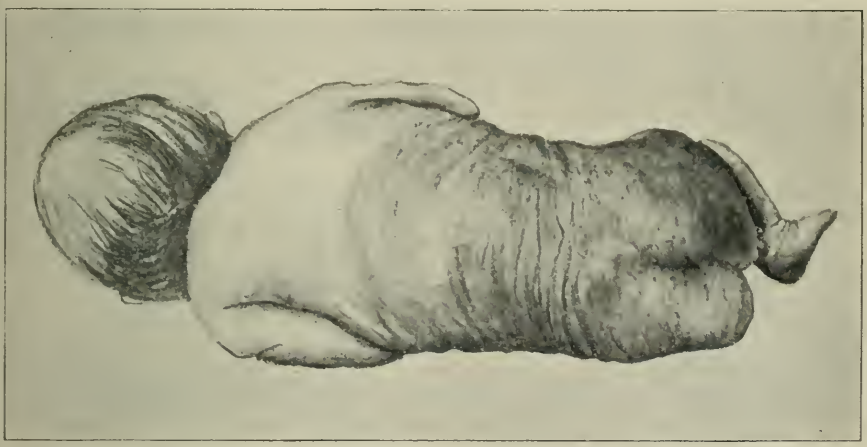

PLATE II.—Pigmentation of the skin of the lower half of the body of an infant. (From a photograph.) There were two similar patches on the scalp.

The most modern form of incubator—the "Couveuse Lion"—has been purchased from the Lion Institute in Paris. It is easily worked and gives perfect satisfaction.

INFANT MORTALITY IN PELVIC PRESENTATIONS.

Of the 54 cases of pelvic presentation in the Intern Maternity—6 infants were macerated, 15 premature, and 33 full time. Of the premature infants—7 were alive and 8 dead. Of the full-time infants—30 were alive and 3 dead, being an infant mortality of 1 in 11, or 9 per cent. We do not count cases under this heading in which version was performed.

Of the 54 cases of pelvic presentation in the Extern Maternity—4 infants were macerated, 2 hydrocephalic, 8 premature, and 40 are recorded without particulars. Of the premature infants—4 were alive and 4 dead. Of the 40—28 were alive and 12 dead, being an infant mortality of 30 per cent.

ART. XXIX.—*On the Mortality of Children in Ireland* (1886-1896).* By LANGFORD SYMES, F.R.C.P. (Dubl.); Assistant Physician, Dublin Orthopædic Hospital; Physician to the Homes for Destitute Children; Late Clinical Assistant Physician, Hospital for Sick Children, Great Ormond-street, London.

I HAVE ventured to submit to you some calculations, which, though very few, are yet of great importance, and I hope of some interest, concerning the deaths of young children in Ireland. These may not, perhaps, afford much material for a lively argumentative discussion, but as an investigation conducted with considerable difficulty and very great care, I ask your kind attention for a few moments. Long columns of figures, death-rates, and percentages I have reduced to their smallest possible compass, and I have endeavoured to present to you, accurately, in a nut-shell the present state of child-life in this country.

For your convenience I have taken the liberty of handing

* Read before the Section of State Medicine in the Royal Academy of Medicine in Ireland, on Friday, April 29, 1898.

you these figures, and I trust they appear in an intelligible form.

In Table I. you will see the deaths of young children under 1 year and under 5 years in the whole of Ireland and our four large cities, for 10 years ending 1896, along with the total births and deaths at all ages.

TABLE I.—*Summary of Deaths of Children under 1 year and under 5 years in the whole of Ireland, Dublin, Belfast, Cork, and Limerick Cities, with total Births and Deaths for Ten Years ending December 31st, 1896. (From Annual Reports of the Registrar-General).*

Total for Ten Years ending December 31st, 1896.

	Total Births	Total Deaths	Deaths of Children under 1 year	Deaths of Children under 5 yrs.
Whole of Ireland ...	1,072,592	845,722	105,469	174,614
Dublin City ...	100,045	93,106	17,131	28,517
Belfast ,, ...	95,727	50,224	14,620	26,110
Cork ,, ...	32,013	28,757	3,881	6,355
Limerick ,, ...	16,341	13,181	1,773	2,696

These are even better understood by a glance at Table II., which sets forth the rates per 1,000.

TABLE II.—*For Ten Years ending December 31st, 1896.*

	UNDER ONE YEAR. (Rate per 1,000 Registered Births). Out of every 1,000 Children born there die in 1st year	UNDER ONE YEAR. (Rate per 1,000 total Deaths). In every 1,000 total Deaths there die Children under 1 year	UNDER FIVE YEARS. (Rate per 1.000 total Deaths). In every 1,000 total Deaths there die Children under 5 yrs.
Whole of Ireland	98·6	124·7	206·4
Dublin City ...	171·2	183·9	306·2
Belfast ,, ...	142·2	291·0	519·8
Cork ,, ...	121·2	134·9	220·9
Limerick ,, ...	108·5	134·5	204·5

Observe that in the *City of Dublin* out of every 1,000 children born 171·2 die in their first year. This is the highest in Ireland. Look for a moment at *Belfast*. Here you will see a most astonishing fact—viz., that in every 1,000 total deaths no less than 519·8 (almost 520, and considerably over *one-half*) are children under 5 years of age. We are not quite so bad here in Dublin, although our rate is higher than it might be; but it is a reproach even to us that of our own total deaths more than one-third are children under five (306·2 per 1,000).

Thus far many investigators have gone before, and being accustomed to see such figures often quoted they may, perhaps, cause you no surprise.

I will, however, pass on to a more practical aspect of the subject, and ask you to come with me a step further, and let us investigate the causes of these deaths—viz., what classes of disease are most fatal to children in this country, and hence, perchance, we may at length approach the *fons et origo mali* (the sources of our high infantile mortality), a pursuit which is alike fraught with difficulty and interest.

In Table III. you will see set forth the *classes* of disease most fatal to children in Ireland under 1 year and under 5 years, for ten years ending 1896.

Table III.—*Classes of Disease most Fatal to Children in the Whole of Ireland for Ten Years ending December 31st, 1896.*

Under One Year. Causes of Death.		Under Five Years. Causes of Death.	
1 Local Diseases ...	46,444	1 Local Diseases	77,424
2 Ill-defined causes .	30,716	2 Specific Febrile Zymotic Diseases	36,774
3 Specific Febrile Zymotic Diseases	15,400	3 Ill-defined causes ...	34,288
4 Constitutional Diseases	6,274	4 Constitutional Diseases ...	16,690
5 Developmental ,, ...	4,715	5 Developmental ,, ...	4,758
6 Violence	1,731	6 Violence	4,248
7 Parasitic Diseases ...	197	7 Parasitic Diseases ...	425
8 Dietetic ,, ...	52	8 Dietetic ,. ...	57

In this list I would draw your attention to the fact that of young children dying in Ireland an enormous number

appear to be so *indifferently certified* that they cannot be properly registered and classified. It is a great pity that so many deaths are ill-defined. Observe, also, that these imperfections are almost entirely confined to children under one year. What does this mean? I take it to signify, amongst other things, that the younger the child is the greater is the difficulty of the diagnosis of its disease, and hence the greater likelihood of its being inaccurately recorded. Again it must be borne in mind that in a great number of these ill-defined cases there has been no medical attendance at all, and the children have been allowed to die uncertified.

Pursuing this a step further, Table IV.* will, perhaps, bring it out more forcibly. It shows you the various *systems affected* or *orders* of disease most fatal to young children. They are placed in the order of their relative importance.

This is a very valuable and interesting table. Observe the high place occupied by *nervous diseases*, especially in young infants. There were 21,998 cases of nervous diseases under one year, while in the *next four years combined* there were only 6,830. This is most remarkable. Observe, also, how *respiratory* diseases chiefly kill the older children.

Equally striking is the frequency of *diarrhœal* diseases under one year. *Venereal* diseases are seen to act heavily on the younger children. Mark, also, the large number of *homicides* in infancy. There is an absence of *malarial* diseases.

The most useful Table of all is, however, the longest—Table V. It shows the actual registered diseases, and individual causes of death of all young children in Ireland for ten years, arranged in the order of relative morbidity.

* Omitted from want of space.

Table V.—[Abridged.]—*Registered Diseases and Actual Causes of Death of all Children in the Whole of Ireland for Ten Years ending December 31st, 1896, in the order of relative morbidity.*

Under One Year. Causes of Death.		Under Five Years Causes of Death.	
1	Debility, Atrophy, Inanition - - -	29,136	32,062
2	Convulsions - -	20,764	25,261
3	Bronchitis - -	14,017	24,773
4	Diarrhœa and Dysentery	5,762	11,456
5	Whooping-cough -	4,893	8,383
6	Premature Birth -	3,827	7,564
7	Tabes Mesenterica -	3,512	7,557
8	Pneumonia - -	2,519	5,868
9	Tubercular Meningitis -	1,755	5,509
10	Measles - - -	1,691	5,069
11	Croup - - -	1,589	3,827
12	Dentition - -	1,201	2,919
13	Ill-defined and not specified Causes - -	1,176	2,646
14	Diseases of Stomach -	1,145	2,399
15	Influenza - -	1,052	Forms of Tubercle or Scrofula other than Tabes, Phthisis, and Tubercular Meningitis 2,190
16	Inflammation of Brain and Membranes -	923	2,000
17	Enteritis - -	796	1,941
18	Ill-defined Diseases of Respiratory System -	645	1,909
19	Forms of Tubercle and Scrofula - -	637	1,818
20	Suffocation - -	578	1,754
21	Ill defined Accidents or Negligence - -	498	1,217
22	Simple Cholera - -	418	1,196
23	Homicide - -	406	1,194
24	Syphilis - -	399	751
25	Spina Bifida - -	363	621
26	Ileus and Intestinal Obstruction - -	357	613
27	Scarlet Fever - -	356	607
28	Ill-defined Diseases of Liver	354	578
29	Erysipelas - -	314	495
30	Phthisis - -	231	484
31	Sore Throat, Quinsy -	215	480
32	Ill-defined Diseases of Brain and Cord -	202	452
33	Atelectasis - -	197	452
34	Thrush - -	186	430
35	Diphtheria - -	171	407
36	Laryngitis - -	164	
37	Peritonitis - -	162	
38	Burns and Scalds -	160	
39	Abscess - -	153	
	&c., &c.		&c., &c.

Now what disease heads the list? A very indefinite and unsatisfactory diagnosis. I think you will grant that *debility, atrophy, and inanition* is somewhat too general a term for a medical certificate. True it is that some of these are uncertified, but by no means a large proportion. This opens a large field for investigation. It represents, I think, a certain lack of that precise accuracy in our diagnosis of the fatal diseases of children, which, however difficult it may be, yet we all should aim at. Most of the cases catalogued in former tables as "ill-defined and not specified" are here found entered as "debility"—a title truly indistinct.

A like observation holds good with regard to *convulsions*. This, as you know, is not a true disease at all. It is merely a symptom—a most obscure one I grant you, but one which I think we should endeavour to fathom somewhat more deeply than, perhaps, we have been hitherto accustomed. Convulsions may be symptomatic of the most varied and diverse forms of disease, from the most trifling dyspeptic ailment on the one hand, to the most incurable gross structural disease on the other. To my mind, we might just as well register a death as due to *headache* as to say a child died of "convulsions." The diagnosis is difficult, but I believe we should try it, and not only so, but that we should educate our students to try it also. It is, at present, almost open to any outsider to say that the two chief causes of our infantile mortality in Ireland are diseases which are insufficiently recognised by our Profession.

There are many other points of interest in this Table—see No. 12 in the first list (No. 14 in the second). Now, *do children die from dentition?* I do not believe they do. We have all seen children die during the process of "teething," hundreds do, but if solely attributed to this cause I now believe the diagnosis to have been a more or less mistaken one. There are many accidents and accompaniments attending this period of "dentition" in children, just as there are at "puberty" and the "menopause," but as an actual cause of death it should not, I hold, be registered, as it has only a predisposing and remote connection with many of its contemporary troubles.

It is interesting to see where *suffocation* comes in our list; it ranks high in young children. Other diseases, to whose special position in infancy I would draw your attention, are:—*syphilis* (No. 24); *diphtheria* (No. 35); and *enteric fever* (No. 48). This latter I am inclined to believe is rather exaggerated in frequency. *Chorea* (No. 126), so very prevalent in later childhood, scarcely affects infants at all, and caused only one death in the whole of Ireland in ten years.

Turning now to the older children—viz., total under five years—observe *diphtheria* again (No. 19). I am of opinion this is very much under the mark. It is more common in these children than we are aware, but the uncertainty of the meaning of the word *croup* renders the returns as "diphtheria" exceedingly unreliable. I believe I am very nearly right—I will not say quite right, but very nearly so—when I say that *there is no such disease as croup.*

I have purposely inserted all the causes of death usually registered in this country, leaving blanks attached, to show how these affections have no part in the production of infantile mortality.

Finally, may I ask your attention to another important fact—viz., that this subject of "infantile mortality" seems to lie at the door of us *physicians* and not of the *surgeons.* With the high death-rate of children the surgeon appears to have little or nothing to do. I would that surgery might take with medicine its equal share of responsibility in this matter, but if you glance down these lists of deaths, how hard it is to find a purely surgical affection. They evidently die from "medical diseases." Whether it is that surgery in young children is more brilliantly successful, and that medicine is comparatively a failure, or whether it can be that the practice of medicine amongst children is but little understood by any of us, or whether, again, that a *surgical* disease may be so supernaturally transformed as to die with a medical certificate are questions which I leave to your wiser judgment to determine! One thing, however, is certain, and *in this connection it should be borne in mind* for it is perfectly clear, *that hospitals for sick children should be mainly devoted to medical work.*

We must remember that in these matters we can deal only with the *fatal cases*. We have no public records of disease kept in the United Kingdom. We can, therefore, only guess at the comparative frequency of any illness.

I would ask you to kindly recollect that I have here attempted to give you only the smallest possible "bird's-eye" view of the whole subject as it appears to me, but a view which is, I think, essential before any deeper study can be undertaken

I hope these few tables may be of some little use in pointing out the diseases from which young children are dying in Ireland at the present day, and which have to be fought against in any attempt to reduce our infantile mortality They will, at least, lay a small but accurate foundation for further work on this subject. The chief of these diseases are ruled off at No. 11 on our list.

In conclusion only one word more—it is to return my cordial thanks to Dr. Grimshaw, our Registrar-General, for his kindness in lending me copies of his returns, some of which were out of print.

Also, I would refer you to a most able paper by Dr. Grimshaw on the social aspect of "Child Mortality in Dublin," which he traces to the four following causes:—

1st. Poverty.
2nd. Inferior House Accommodation of Artisans and Labourers.
3rd. Drunkenness.
4th. Carelessness.

Against these four causes then, and the first eleven diseases in my list, must be directed any and every crusade against the mortality of children in Ireland.

Art. XXV.—*A Case of Cerebral Abscess.*[a] By J. J. Burgess, F.R.C.S.I., L.R.C.P.I.

The following case is deserving of interest from the fact that such an extensive lesion of the membranes and cerebral cortex presented so few physical signs with the continuous prevalence of the one symptom :—

Case.—A. D., aged thirty-six, of intemperate habits, was admitted as destitute to the North Dublin Union, and sent to a hospital ward suffering from persistent headache.

I saw him about three months before his death—a year and nine months after his admission—and my interest was attracted by the constant presence of the pain, despite all treatment, during his time in hospital.

It was with some difficulty I could elicit a history. When asked a question he would, after an interval, answer in a few words, which effort appeared to increase his distress; then to escape further worry would turn over and feign sleep.

After several endeavours the history may be summarised as follows :—

From early manhood he had been an inveterate drunkard. When in this condition he was quarrelsome, and on at least two occasions he received injuries to his head, which had the effect of stunning him. He dates the beginning of the headache from a blow from a stick on the right side of his skull, causing a lacerated wound, from which accident he never recovered sufficiently to resume his occupation, was obliged to go to hospital, and, except for very brief intervals of relief, has been in the same condition ever since. I learned from the attendants that lately he had six convulsive seizures, the spasms being left-sided.

This is a doubtful point, since not having seen him in a fit myself I should be dubious of the ability of the people in charge of union wards to recognise unilateral spasms. He was able to get from his bed to the night chair, sometimes assisted, sometimes not, and beyond feeling weakness in his legs had no paralysis of either extremity. His face presented a dusky pallor; his skin was dry; body emaciated; no œdema; temperature subnormal—97.

Pulse of low tension, full, 72-78; heart-sounds indistinct, but free from murmur; impulse in 5th space very weak.

[a] Read before the Section of Medicine, in the Royal Academy of Medicine in Ireland, on Friday, April 15, 1898.

He had cough, evidently pharyngeal, with stringy mucus.

Both lungs were normal, the breathing being slow and superficial.

The tongue was whitish, without marked fur; there had been no vomiting; bowels constipated; passed about 50 oz. urine daily, sp. g. 1·014, containing about 50 per cent. albumen, no sugar.

The surface of his body was hyperæsthetic all over.

The pupils were slightly dilated, but even, and barely acted to light.

Knee-jerks.—The leg reflexes acted slightly, but were soon lost on the left side with motion.

The headaches, he explained, seemed to start backwards and forwards from his right temple to his occiput, and then from over the entire head; he never got a perfect sleep—dozed for a short time, to be again awakened by the pain or any noise in the ward. Thus he spent most of his days and nights. He kept his eyelids closed, answered questions in a whining tone, after an interval, allowing a pause between each word. He presented no hemiopsia.

I regret I was not able to get an examination of his retinæ by a specialist; the gentleman who promised to come was unable at the time to attend.

However, taking the symptoms and physical signs at this time, there was motor weakness of the left leg. With the history of injury of the right side of head and alcoholism it was evident that I had something more than an uræmic headache to deal with.

The Jacksonian epilepsy, right side headache, and paralysis of left lower extremity pointed, in my opinion, to either an abscess or tumour implicating the convolutions at the uppermost part of the Rolandic sulcus. Accordingly I sent for the man's relatives, and told them I conscientiously believed that the one chance for the man's life was an operation. To this, unluckily, they would not agree, and to this I am indebted for the specimen now exhibited. The autopsy was by their wish confined to the cranium and its contents.

The external surface presented two depressions—one in the middle line, just above the supra-orbital ridges, a sharp depression as if a piece of bone had been chipped away. There was, however, no scar on the skin-covering, and

this, for aught I know, may be an uncommon but non-traumatic condition.

The second was just over the right parietal eminence, and was undoubtedly traumatic; the outer table was bent in over a space about the size of a shilling.

On lifting the skull the dura mater was not adherent, except in the vicinity of the second depression, where it was adherent and thickened over a space about three inches square. So hardened was it that at first I believed it to be a tumour underneath, until carefully removing it at the circumference a jet of greenish pus shot out.

Over the whole vertex the dura mater exhibits great thickening, and is completely adherent to the cerebral cortex for about one and a half inches to the left and for three inches to the right of the middle line, on which side the thickening is much more marked.

Transverse sections through the thickened membranes and subjacent cortex revealed a cavity containing, in the recent state, a bright greenish pus. This collection did not extend anteriorly beyond the posterior part of the ascending parietal convolution—*i.e.*, encroached slightly, if at all, on the Rolandic area, being about an inch distant from the middle line.

As the site of this fluid was traced backwards—at first situated immediately beneath the membranes—it seemed to burrow somewhat into the brain substance, and in the occipital lobe, towards its termination, was roofed in by a thin layer of cerebral cortex. The cavity did not exceed an inch in diameter in any part of its course, becoming much narrower posteriorly.

The layers of membrane enclosing the superior longitudinal sinus shared in the general thickening, and, though patent anteriorly, from the point where the abscess seemed to originate to its termination in the lateral sinus, its lumen becomes completely obliterated, exhibiting a condition of complete thrombosis.

ART. XXVI.—*Stab Wounds of the Left Shoulder, necessitating Ligature of the Left Subclavian Artery on the 27th Day; Recovery.* By R. BOLTON M'CAUSLAND, Sen. Mod., B.A. T.C.D., M.D., F.R.C.S.I.; Surgeon to Steevens' Hospital.

THE operation of ligature of the second part of the subclavian artery for aneurysm has lately formed the subject of an interesting paper in the Royal Academy of Medicine in Ireland by Mr. Croly. In spite of this fact, I hope I may be pardoned for shortly recording the notes of the case, which is the subject of my communication, as the operation was performed for recent stab wounds of a large vessel (probably axillary), with alarming secondary repeated hæmorrhages, after an attempt was first made to find the bleeding point.

Since my connection with Steevens' Hospital I have seen only one other case of secondary hæmorrhage, and there has been no case requiring ligature of the subclavian in any stage, nor can I find any record of when, or by whom, it was last tied in that institution.

The notes are shortly as follows:—

CASE.—J. N., aged thirty-four, a shoemaker, was stabbed by his own father, on February 16th, 1898, with a shoemaker's knife, in four places—one in the region of the deltoid insertion, one above this, a third cutting the posterior fold of the axilla, and the fourth above the collar bone on the trapezius muscle. He was brought to hospital, having lost much blood and collapsed, but only bleeding slightly then. Owing to a mistake of the house surgeon I was not sent for, but my pupil, Mr. Quin, dressed the wounds carefully, putting in eighteen stitches, and bandaging the arm to the side.

When I saw the patient next day he was comfortable, and there was no bleeding, but he was blanched, with a quick, thready pulse. The wounds, being free from pain, were not dressed for five days. I then saw them for the first time; two were looking well, the two about the shoulder red, and somewhat swollen. I removed the stitches from all. The two latter wounds gaped, one especially, no discharge or blood from any of them, and I hoped for a speedy convalescence, as the man was better, and temperature and pulse good, appetite improving. On the seventh, eight, ninth and tenth

days the dressings were blood-stained, necessitating changing. I had ice applied to the shoulder, ergot and gallic acid internally, and a special nurse day and night, and on consultation my colleague, Mr. Hamilton, agreed with me that the one wound should be plugged carefully. This was done with iodoform gauze and hazeline; also, strict quiet, of course, was enjoined. The bleeding ceased for some days, and the man improved. Then the bleeding appeared again on the eighteenth, nineteenth and twenty-first days, and finally culminated in a profuse hæmorrhage on Sunday night, March 13th, the twenty-fifth day.

Dressings, nightdress, and bed-clothes were all saturated, but the hæmorrhage had ceased when the resident saw him. I was sent for, and I had the wound carefully dressed, a morphin hypodermic $\frac{1}{3}$ grain, ergot ʒi., and strychnin $\frac{1}{20}$ grain, administered, saline salt solution by the rectum, lots of ice applied, and quiet. Next morning I had a consultation, but decided to wait a day, as the man was in a very weak state. On Tuesday morning my colleagues, Mr. Hamilton and Mr. Swan, saw him with me. He was better, and had rallied, but it was evident something more energetic should be done.

Three operations seemed to suggest themselves to me:—*a*. Amputation at the shoulder-joint; *b*. Ligature of the subclavian; *c*. To enlarge the wound and look for the bleeding vessel.

Ligature of the axillary artery, in the first stages, is not an operation that recommends itself to me; and the third stage was out of the question, as the arm was very fixed to the side, and there was an unhealthy wound, not healed, in the axilla itself to complicate matters. Ligature of the subclavian seemed to me most preferable; but as there was a large swelling over the scapular region, evidently breaking down blood-clot, my colleagues advised the third proceeding first, and I now think that they were right.

Under an anæsthetic I freely enlarged the opening, giving exit to a large quantity of blood-clot; an unhealthy opening came into view, with a small soft clot leading down towards the head of the humerus. The finger could sweep round this clot; I removed some of it, and the part that remained pulsated more and more the deeper one got in the dissection. I still kept enlarging the wound cautiously, and could feel the neck of the scapula to the inner side, but no bone outside only what seemed to be muscular bands.

I considered the wounded artery was the subscapular, or more likely the axillary itself—*a*. From the direction of the original stab; *b*. From the sudden, rapid, and large amount of the hæmorrhages.

I feared to enlarge the wound more, it was so deep and unhealthy-looking, so I asked my colleagues to examine it. As Mr. Hamilton was feeling the clot it became dislodged, and on withdrawing his finger a copious gush of blood spurted out. I immediately thrust my fingers into the wound, which effectually plugged it. Mr. Swan made for me a long compress soaked in turpentine, which I cautiously pressed in to replace my fingers, and packed some more of the same compresses in on top, and put three deep, strong, silk-worm gut sutures in to keep all in place.

The man was now turned on his back, and the subclavian region was rapidly washed and disinfected, as were also our hands. An incision was made along the clavicle from outer edge of sterno-mastoid to anterior edge of the trapezius; this was enlarged a little later, and the edge of the sterno-mastoid cut; nothing of importance appeared, and the operation was rapidly proceeded with. Two small vessels were for a time clipped, a large artery (transversalis colli) and the omohyoid were seen and drawn upwards. The lower cord of the plexus was seen and at once recognised from its direction, the tubercle on the first rib was badly marked, the subclavian vein was in the lower part of the wound alternately filling and emptying, and the artery at times pulsated visibly, then again not at all.

When the scalene edge was fully made out and the vessel cleaned I passed a fully-curved aneurysm needle from above backwards, downwards, inwards, and forwards quite easily round the artery; this was threaded with three single silk ligatures, No. 3, that had been boiling, and these drawn back again.

These were altogether drawn tight in a single knot, and fastened in a single reef knot, and the ends cut short. Pulsation was now visible up to the knot, but none beyond it. The ligature was drawn tight, but no sense of the coats having given way was experienced.

The wound was irrigated with carbolic lotion, 1 in 20, and then hot sterilised water, dusted with boric powder, the edges accurately adjusted with silkworm gut and horse-hair, sterilised compresses and cellulose applied, and the arm wrapped up in wadding and flannel bandages. The left arm and forearm had been swollen and œdematous for some days past, and the pulse had been with difficulty felt; none, however, was felt after the ligature was applied.

The operations had taken two and a quarter hours, and the man had borne them well, but I gave him a hypodermic of morphin, $\frac{1}{4}$ gr., and strychnin, $\frac{1}{20}$; these rallied him well. To shorten the notes, I may say the man went on well until

Thursday morning, about 3 a.m., when he became delirious; morphin and bromides freely given, and ice to the head, did not seem to have any effect. His violence, tossing about and shouting, was extreme, and his strength very great—surprising after all he had gone through, and causing me to fear giving-way of the ligature, hæmorrhage, opening up of the two wounds, and other numerous complications.

Some surgeons, who were at the hospital that day to see another operation, both heard his shouts and saw him with me. Some thought it was alcoholic delirium, but I did not think so. Mr. Bennett, our consulting surgeon, advised opium enemata, two of which he got; with difficulty I removed the plugs from the posterior wound, irrigated it, and dressed it lightly with iodoform gauze, no bleeding from it at any time, and it has been dressed once daily ever since; it granulated rapidly, and was finally healed on May 5th. The delirium passed away in nine and a half hours, as rapidly as it came on, and he has had no return of it since.

The subclavian wound was dressed first on the 8th day—it was dry and completely healed, except where one stitch had slipped, and there was a dry scab one-third inch long on that spot; all the stitches were removed, and it was only dressed twice since then, though a firm pad was kept constantly on it. The patient's temperature fell to normal the second day after operation, and has remained so, with the exception of a few trivial rises due to confined bowels—always a trouble with him. He had one slight rigor fifth day after operation, the cause of which I could not make out; it was followed by no new signs and symptoms and no increase of old ones.

Pain, with exacerbations at times in the deltoid region, forearm and hand, which he had complained of since he was stabbed, was his only troublesome symptom after operation; this was treated by morphin hypodermics when excessive, and by gentle rubbing and massage later on when permissible.

In the second and third weeks after operation, pains in the hand and shoulder were most severe, due, I thought, to vascular alterations.

After operation the œdema in the limb rapidly subsided, but no pulsation was felt in any part of it until the thirty-fourth day after operation, when the radial only was felt feebly pulsating. His appetite increased gradually; he asked leave to smoke on the fourteenth day (after opera-

tion), and was allowed up out of bed on the twenty-fifth day. With massage and more freedom of movement allowed. the limb is daily improving, and the pains are not so severe as they were.

My best thanks are due to my colleagues for their experienced advice and assistance, and also my thanks are due to Mr. Quin, my dresser, and those nurses whose unremitting care and attention tended towards the recovery of this most anxious case.

I have had the honour of showing the patient to members of the Surgical Section of the Royal Academy of Medicine in Ireland.

SCARLET FEVER.

SEIBERT (*Arch. of Ped.*, September, 1895), has found that inunctions of a 5 per cent. ointment of ichthyol have been followed by a most marked effect upon the local condition of the skin, producing decline of fever and improving the general condition. The swollen, red skin shrinks and turns pale brown; the temperature falls 3° to 4° within two hours; and the nervous, itching, peevish child becomes quiet and usually goes to sleep.

LAVAGE OF THE ORGANISM IN ACUTE COCAÏN POISONING.

FROM experimental researches conducted by Dr. C. Bozza, of Naples, he arrives at the following conclusions:—"(1.) While the minimum fatal dose of cocaïn muriate administered hypodermically is 0·025 gr. per kgr., one can inject, of the same drug, without fatal result:—(*a*) Gr. 0·03, if we follow the said injection with hypodermoclysis; (*b*) and 0·035 gr. per kgr., if we follow the said injection with lavage of the organism by the injection of the physiological solution of sodium chloride. (2.) While the minimum fatal dose of cocaïn muriate administered fasting by the alimentary canal is $3\frac{1}{2}$ centigr. per kgr., one can, with lavage of the organism, administer as much as $5\frac{1}{2}$ centigr. per kgr. without fatal result. The maximum limit of tolerability could be much greater if the toxic substance were given in broken doses, as Sanquirico did, rather than in a single dose; but I refrained from experiments by that method, because poisoning by cocaïn, whether accidental or with criminal or suicidal intent, rarely takes place in broken doses."—Translated for the *Canadian Practitioner*, from *Giornale Internaz. delle Scienze Medicine*, February, 1898, by Dr. Harley Smith.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Clinical Lectures on Diseases of the Heart and Aorta. By GEORGE WILLIAM BALFOUR, M.D. St. And., LL.D. Edin. and St. And., F.R.C.P. Edin., F.R.S. Edin.; Consulting Physician to the Royal Infirmary, Edinburgh, &c., &c., &c. Third Edition. London: Adam and Charles Black. 1898. 8vo. Pp. 479.

THE first edition of these instructive lectures appeared in 1876, the second edition in 1882, and now the third edition is published in 1898. These lectures are clinical in structure and matter. They are seventeen in number, and embody the author's personal experience of the topics with which they deal. Included in the text are notes of a series of forty-six cases quoted in illustration of the author's teaching in relation to various valvular and cardiac lesions.

We notice, with pleasure, that full justice is done to Irish physicians in the text. The researches of Corrigan, Stokes, Thomas Beatty, Tufnell, Hayden, Bellingham, and others, are quoted—generally with approval, always with respect.

In our reviews of the first and second editions[a] we pointed out the character and scope of Dr. Balfour's book. It is essentially a clinical work rather than a systematic treatise. Hence the arrangement of the subjects discussed is not schematic, and there is no attempt at classification.

In Lecture XIV., on the Therapeutics of Cardiac Disease, the principal debatable point is the author's unqualified depreciation of the value of strophanthus as a remedy in heart affections. "Though strophanthus belongs to the same group as digitalis," writes Dr. Balfour, "it acts very dissimilarly. "Strophanthus acts *three thousand times more powerfully* on the heart than digitalis, but it acts *one hundred times less powerfully* than digitalis upon the muscles of the

[a] See Vol. LXII., No. 56, Third Series; August, 1876, page 119; and Vol. LXXIV., No. 128, Third Series; August, 1882, page 121.

arterioles." These are, of course, Professor Thomas Fraser's statements.[a] "There is thus," adds Dr. Balfour, "no similarity whatever between the action of the two drugs." "There is no tonic action, no improvement of the cardiac energy, and the powerfully stimulating action of strophanthus on the heart itself must tend to exhaust an already feeble myocardium. Moreover, the action of strophanthus on the heart is twofold; in small doses it may arrest the heart in diastole, and in large doses it may force it into a fatal systole. Like all its congeners of the *Apocynaceæ*, strophanthus is a cardiac poison, and not a cardiac tonic. It forces the heart into increased energy of movement without providing for any corresponding improvement in its metabolism, hence the heart must draw upon its reserve, and the patient is only saved from dire disaster by the benefit he derives from rest, warmth, and nutritious food, that is by the improvement in his environment generally." "Strophanthus is thus uncertain in its dose, and may be dangerous in its action, and though not cumulative it may be injurious or even fatal without warning."

This is a rather sweeping denunciation of a drug which many physicians daily prescribe with much confidence, and apparently with benefit in cases of heart disease. It is, no doubt, true that strophanthus is not suitable in all cases, and that common sense must be exercised in prescribing. It is equally true that in some cases of cardiac failure and of uncompensated valvular disease, strophanthus acts like a charm, restoring compensation, but, above all, relieving the patient.

In an admirable address on the Therapeutics of Heart Disease delivered in the Section of Medicine at the meeting of the British Medical Association at Carlisle, in 1896, Sir T. Grainger Stewart compared the two drugs, digitalis and strophanthus. "If the case admits of delay," said he, "use digitalis; if you wish to produce an immediate effect, give strophanthus." Over and over again we have verified the correctness of this opinion. Nor should we be too timid as regards the dose of the drug—7½ to 10 or even

[a] "Strophanthus Hispidus." Trans. of the Royal Society of Edinburgh. Vol. XXXVI., Pt. 2, page 403.

15 minims of the official tincture may be given thrice daily, or, in some cases, every fourth hour; but only for 48 hours or so at a time should these free doses be exhibited.

There is little in Dr. Balfour's prescriptions to criticise adversely. At page 58, however, he combines 10 minims of tincture of digitalis with 5 minims of liquor arsenicalis and a like quantity of the tincture of the perchloride of iron. Surely the arsenical preparation should be the liquor arsenici hydrochloricus.

The author's style is clear and fluent. Scarcely any inelegancies grate upon the ear—"specialities" (for "specialties") at page 63 is an example which but serves as a counterfoil to the usual high standard of Dr. Balfour's literary skill. At page 326 there is the strange misprint *corpora aurantii.* In his third edition the author has enhanced his reputation and conferred a boon upon his professional brethren.

Annual and Analytical Cyclopædia of Practical Medicine. By CHARLES E. DE M. SAJOUS, M.D., and One Hundred Associate Editors, assisted by Corresponding Editors, Collaborators, and Correspondents. Illustrated with Chromo-Lithographs, Engravings, and Maps. Volume I. Philadelphia, New York, and Chicago: The F. A. Davis Company Publishers. 1898. 8vo. Pp. 601.

UNDER the above heading the well-known "Annual of the Universal Medical Sciences" appears in a new and enlarged form.

In a recent review of "The Monthly Cyclopædia of Practical Medicine and Universal Medical Journal"[a] we sufficiently pointed out the salient features of Dr. Sajous's new publication, the first volume of which has been presented to us after a very handsome fashion. It is, therefore, merely necessary to state that the object of Sajous's "Annual and Analytical Cyclopædia of Practical Medicine" is to help the professional labours of the practitioner, the teacher, and the writer. The practitioner will find in the pages of the work innumerable suggestions culled from

[a] See page 330.

the literature of the past decade. The teacher will be able to quote from its columns examples and cases, calculated to illustrate his systematic or clinical lectures. The writer may gather the fullest information on any special topic, for the literature of every civilised country is represented in the cyclopædia. If he wishes to review recent medical literature he will find it under the heading "Literature of '96 and '97." Should the reader's time be limited, he need study only the text in large type. If he has time to spare he may with benefit read the text in small type.

The present volume carries us from "Abdomen, Injuries of the," to "Bright's Disease." No pains have been spared by the Editorial staff and by the publishers to make the work worthy of its readers. Dr. Sajous has our hearty congratulations.

Text-Book of Nervous Diseases, being a Compendium for the use of Students and Practitioners of Medicine. By Charles L. Dana, M.A., M.D.; Professor of Nervous and Mental Diseases in the Bellevue Hospital Medical College; Visiting Physician to Bellevue Hospital; Neurologist to the Montifiore Home, &c. Fourth Edition, revised and enlarged, with 246 Illustrations. London: J. & A. Churchill. 1898. Pp. 623.

We are much pleased with Dr. Dana's work. His object in writing the book has been to present the science of neurology in a concise, yet as far as possible complete, form, and we must congratulate him on his success. The book cannot quite be compared with the works of Gowers, Ross, and others who have written large treatises on the subject; on the other hand, it contains more than do the neurological sections of our text-books on medicine and the smaller introductory text-books of nervous diseases. Especially do we find Dr. Dana devoting much space to the anatomy of the nervous system, both naked eye and microscopic, and these sections are illustrated with many figures and diagrams.

Dr. Dana's work then starts with the anatomy of the nervous system. He describes the modern views as to the

nature and connections of the neuron, and introduces a good many figures and one coloured plate to illustrate the cells as found in the nervous system. Most of the figures are very good. We could, however, wish that some were more clear—*e.g.*, those representing the distribution of the sensory nerves of the skin and those showing the motor points for the application of electricity.

The various nervous diseases are well, though rather briefly, described. We miss that frequent reference to individual cases which forms such a valuable part of the larger works on the subject, but, on the other hand, the readers of Dr. Dana's work will find the important points in each disease clearly brought out, and expressed tersely.

The illustrations, both clinical, anatomical, and pathological, form a valuable part of the work, many of the woodcuts representing striking symptoms—*e.g.*, the gait in paralysis agitans—are very instructive.

Selected Essays and Monographs. Translations and Reprints from various sources. London: The New Sydenham Society. 1897. Pp. 436.

THIS volume of the New Sydenham Society's publications contains essays on very various subjects. The first and longest in the book is on syringomyelia, by Isaac Bruhl, of Paris. It gives a very complete account of the disease, illustrated by notes of some typical cases, and by a coloured plate showing sections of several cords in which central gliomata are breaking down into cavities. In the text a good deal of attention is rightly paid to the differential diagnosis.

There are three essays on syphilis in its relations to the nervous system; one by Dr. H. M. Thomas (Johns Hopkins Hospital) on an unusual case of cerebro-spinal syphilis; one by Professor Fournier on syphilis and general paralysis; and one by the same author on para-syphilitic epilepsy.

A large part of the book is taken up with essays on various kinds of skin diseases. There are articles on pemphigus vegetans by Professor Köbner and by Professor Newmann; on frambœsia (yaws), by Drs. Maxwell, Nicholls, Breda, and Charlouis. These on yaws contain a good many coloured

illustrations of the disease. Taken together, these essays represent the experience of medical men in the West Indies, British Guiana, Fiji, Java, and Brazil, and form a valuable collection of literature relating to this subject.

Researches on Tuberculosis. The Weber-Parkes Prize Essay, 1897. By Arthur Ransome, M.D., F.R.S.; Consulting Physician to the Manchester Hospital for Consumption and Diseases of the Throat, &c. London: Smith, Elder & Co. 1898. Pp. 84.

The most interesting and valuable portion of this essay is that which refers to the author's original investigations. He first shows that, according to the Registrar-General's statistics, the mortality from phthisis is steadily diminishing, having fallen from 38 per 10,000 in 1838 to 14 per 10,000 in 1894. A remarkable feature is that the chart containing these returns shows an almost perfectly even and regular descent in the phthisis mortality. Another curious fact is that tubercular diseases, other than those of the lung, do not appear to be decreasing—a fact possibly to be explained, although Dr. Ransome does not hint at any such explanation, by our knowledge of the tubercular nature of many diseases of previously unknown origin.

He goes on to show that in his own neighbourhood tuberculosis is far more common among a portion of the population who live on a clay soil than among the rest, whose dwellings are built on sandy soil; the general conditions and mode of life are similar in the two groups.

A series of interesting and valuable experiments show the effects of air and light on tubercle bacilli. Dr. Ransome finds that free currents of air cause bacilli to perish rapidly in daylight and slowly in the dark, whereas in the absence of currents of air they retain their vitality for long periods.

In another series he shows that the organic vapours given off in expired air promote the growth of the bacillus, while he found the best household disinfectant to be a one per cent. solution of chloride of lime.

Dr. Ransome's recommendations for the prevention of tuberculosis are excellent, but we fear at present, at least,

unattainable. Thus, as well as perfectly sanitary houses for everybody, he advises that every consumptive person who is without proper lodging and accommodation, or who cannot or will not take the proper measures for disinfecting and destroying the infective material, should be placed in special hospitals or asylums.

In the last chapter he gives the results of his experience with various drugs. He finds that iodoform in pill, two grains three times a day, seemed generally useful, as also was creasote, especially when the dose was increased to thirty minims a day.

Transactions of the Clinical Society of London. Volume the Thirteenth. London: Longmans, Green & Co. 1897. Pp. 262.

This volume of the Clinical Society's Transactions shows evidence of work among its members of which any society might be proud. The "clinical" character of all the papers is very marked; they are all records of cases, many of which are of great interest.

Of them all, perhaps that which has especially interested us is Mr. Parkin's case of the successful removal of a cerebellar tumour from a child aged four years. At the operation a large flap, made by an incision from mastoid to mastoid, was thrown upwards, a considerable area of bone was removed, and the cerebellum was exposed. Part of it was very soft and yellowish gray in colour, and this was removed till nothing but healthy cerebellar tissue could be seen. The child recovered from the operation, and gradually lost the symptoms she had previously complained of—slow speech, inability to walk, optic neuritis, increased reflexes. The tumour seemed to be gliomatous. The child was in good health at the end of two years.

Mr. Arbuthnot Lane also records the removal of a tumour—endotheliomatous in nature—from the ascending frontal and neighbouring convolutions. Dr. Newman records some interesting cases of increased vascular tension in the kidney, causing pain and albuminuria, which were relieved by surgical means. Mr. Robinson relates a very interesting case,

in which two quarts of pus were removed from the pericardial sac with perfectly successful result. Dr. Lancaster relates a curious case of fatal gastric hæmorrhage, the blood coming from a small perforation in a varicose gastric vein.

We are glad to see that the Society is in a flourishing state.

The South African Climate, including Climatology and Balneology. By W. C. Scholtz, M.D. Edin., of Cape Town; Member of the Colonial Medical Council. With Eleven Illustrations. London: Cassell & Co. 1897. Pp. 200.

South Africa is becoming increasingly important as a health resort. A few years ago no physician thought of sending patients there. In many books on health resorts South Africa is wholly omitted; even in Dr. Burney Yeo's work published in 1890 only one page is devoted to it. Now many invalids resort thither, and without doubt their numbers will much increase in the future. Hence there was a need for a reliable and good work treating of the various places and climates in South Africa. For we are inclined to forget the immense size of the country; and while we advise a patient as to which of two towns twenty miles apart on the south coast of England would probably suit him best, we too often merely advise "South Africa," and leave to chance the choice of locality, with its questions of altitude and climate.

Dr. Scholtz's book will help to bring before his readers the size and diversity of the country. It contains eight chapters, each written on some special locality by medical men resident therein. Writing as they do from extended personal experience, their accounts are very valuable—in fact, they form much the most valuable portion of the work. They, of course, vary in quality, some being concise and to the point, while others are rather long-winded and padded out with quotations. But, taken all round, they fill a distinct want and supply a mass of information which it would be difficult to obtain elsewhere.

As regards Dr. Scholtz's own contributions, we regret we cannot speak of them in quite such laudatory terms. While his writing contains much that is excellent, its value is

lessened by the diffuseness of his style. All that he says might with advantage be compressed into very much less space; he has also made a great mistake in not giving practical details, most valuable to those who may intend to go to South Africa. There is very little information as to the means of travel and mode of access to the different localities mentioned in the book, and many more details might have been given with regard to the mode of living and expenses at South African health resorts; a map, too, is badly needed to show the places mentioned in the book.

There are eleven illustrations, said to be of typical bits of South African scenery. It strikes us as strange that eight out of these represent lake or river scenery. We had not thought of South Africa as typically a land of lakes and rivers, and the idea forces itself upon us that these illustrations are intentionally introduced, not to give an idea of the average landscape, but to prove that there are some very pretty bits of river scenery in the country.

In almost every article in the book we notice earnest and strong statements as to the folly—if we should not use the word crime—of sending out unsuitable cases, especially of consumption. Cases that suffer from much fever, rapidly advancing cases, cases in which the disease is very extensive, only die, and that without the comforts they would have had at home. It must be remembered too that South Africa is an expensive country to live in, and that invalids cannot expect to be able to support themselves by work, and hence it follows that no one should go to South Africa unless he has considerably more than enough money to keep him in comfort at home.

Taken all round, the book is a valuable and interesting one, and we commend it to all interested in what is certainly one of the finest climates for many forms of delicacy.

The Royal University of Ireland. The Calendar for the year 1898. Dublin: Alex. Thom & Co. (Limited). 1898. 8vo. Pp. 465.

The Calendar, as usual, contains full information relative to the medical curriculum and examinations. The changes

in the courses and regulations are set out at pages 210 and 211. They are not many. In and after 1899, the hospital attendance required for the second year of medical study will be *Attendance during a Winter Session of Six Months;* but the total hospital attendance will remain as heretofore, *i.e.*, attendance during thirty-three months.

In October, 1899, there will be offered for competition among the graduates in medicine of the University, one Medical Studentship, tenable for two consecutive years, of the annual value of £200. Candidates at this examination must answer in the following subjects:—Physiology and Physiological Chemistry. A practical examination will be held in physiological chemistry and in experimental physiology, and "great importance will be attached to this portion of the examination."

The Practice of Massage; its Physiological Effects and Therapeutic Uses. By A. Symons Eccles, M.B., M.R.C.S. London: Baillière, Tindall & Cox. Second Edition. 1897. Crown 8vo. Pp. 374.

The author of this work on the practice of massage is to be congratulated on the success that he has attained; the demand for a second edition so soon after the appearance of the first is in itself a sufficient proof that the work has been appreciated by those who are interested in the subject.

The definitions of the different terms used in massage, and the various methods of manipulation, are very clearly and carefully explained in the opening chapter, and this is followed by a chapter on the physiological action of massage, which shows that the author has studied the whole subject from a scientific standpoint.

A detailed account of the various affections in which massage has been found of use occupies the remainder and greater portion of the work, and we are thoroughly in accord with all that the author says about the beneficial results that have followed from this treatment of injuries to bones, joints, and muscles, and we heartily join with him in expressing our regret that massage is not more often employed in the early treatment of fractures.

With regard to the value of massage in affections of the skin we are not so sanguine, and that "herpes zoster has been aborted in a large number of cases of sciatica" is certainly a fact that we were not aware of before.

In dealing with diseases of the gastro-intestinal tract the author describes a large number of cases where benefit has followed the employment of massage, and we are sure that carefully executed manipulations are often of the greatest use, especially in cases of chronic constipation, provided that no mechanical obstruction exists.

The treatment of chlorosis by massage we are not familiar with, and we are somewhat sceptical as to its great utility. We believe the great benefit that is described as following this treatment to be largely due to the absolute rest that is enjoined at the same time.

We are glad to note that the author has had such successful results in the treatment of occupation neuroses, as we must confess that in our hands such favourable results have not been procured. Many other affections, too numerous to mention, are also dealt with, and in all the author gives illustrative cases of the benefits that have followed from properly executed massage. Though we have not in all points been in perfect agreement with the writer, we consider the work to be one of very great interest and value, and feel sure it will take a high rank amongst the works already published on this important subject.

A Handbook of Therapeutics. By SYDNEY RINGER, M.D., F.R.S., Holme Professor of Clinical Medicine, University College, Physician to University College Hospital; and HARRINGTON SAINSBURY, M.D., F.R.C.P., Physician to the Royal Free Hospital and City of London Hospital for Diseases of the Chest. London: H. K. Lewis. Thirteenth Edition. 1897. 8vo. Pp. 746.

To review at any length a work which has already passed through 12 editions seems to us unnecessary. The present volume follows the same lines as its predecessors, but the addition of new material has increased its size by nearly 100 pages.

In the early chapters we find a short account of the Nauheim-Schott treatment of cardiac failure. The methods adopted in this form of treatment are very fully described, but we think the authors might have given a more detailed account of the cases in which it has been found of use. To merely state that "the treatment is adapted for the more vigorous cases of heart failure, but, provided that we temper it according to the condition of the patients, it may find its place, *more or less*, in most cases," seems to us sufficiently vague.

The great bulk of the work, as heretofore, is devoted to a detailed account of the therapeutic value of the most important drugs in use at the present time, and here, as elsewhere through the book, we find on examination that no trouble has been spared in thoroughly revising the work and bringing it up to date. New drugs have been added to the already long list, and each of these has received a due proportion of notice.

An excellent article on serum therapeutics is, perhaps, the most important addition to the work. The authors divide the subject into two categories:—

1. "The use of serums, or extracts, obtained from organs or tissues derived from the bodies of healthy animals in the treatment of diseases in which the corresponding organs or tissues are held to be at fault."

2. "The use of serums derived from the bodies of living animals which had been subjected to the influence of various pathologic micro-organisms or of the products of their activity. Such serums are employed in the treatment of the diseases which these same micro-organisms generate when they gain access to the human body."

Each of these divisions is discussed in detail, and the reader will find all the latest information on this new and what promises to be most successful form of treatment.

Some useful receipts for invalid cookery, and a short chapter on the digestive ferments, are added to the article on invalid dietary, and the work concludes, as before, with a carefully prepared index of diseases.

We congratulate the authors on the successful result of their labours. The present volume maintains in every

respect the high standard of excellence that gained for its predecessors such a measure of popularity, and places it among standard works on therapeutics.

Illustrirte Rundschau der medicinisch-chirurgischen Technik. Internationale Vierteljahrsschrift. Herausgegeben von DR. GUSTAV BECK. Bern: K. J. Wyss.

THIS new journal belongs to the class of Centralblätter, and is intended to keep its readers informed as to the novelties and improvements in the methods of treating diseases outside the domain of pharmacology. The first number, which we have received, is divided into five sections. Each begins with a list of papers, and this is followed by abstracts of papers, or groups of papers, on particular subjects. The text is very fully illustrated.

The first section has articles by Ladame, giving a summary of recent work on the kinesitherapeutics of locomotor ataxy and diseases of the nervous system, and on intermittent currents of great frequency.

In the second section there is a review of Kaufmann's Handbuch der Unfallverletzungen by Lardy, together with abstracts of papers on sterilisation of catgut and other surgical subjects.

The third section, on external regional surgery, contains, among others, an original article by Lambotte on the surgical treatment of Potts' disease.

The fourth section deals with pelvic surgery; and the fifth with diseases of the digestive and respiratory organs, and the organs of special sense.

The editor, who, from his long connection with the Illustrirte Monatsschrift der ärztlichen Polytechnik, is well fitted for his task, has obtained the assistance of a large staff of collaborators. The number before us consists of 92 pages, and contains 65 drawings of apparatus described in the different articles. The undertaking is likely to be useful, and we wish it every success. The journal will be published quarterly. The subscription is 10 marks annually.

PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

On the New Tuberculin Preparation. By Geheimrath Prof. Dr. Robert Koch. Translated from the *Deut. med. Woch.*, No. 14, 1897, by H. E. Littledale, M.B.; House Surgeon, Sir P. Dun's Hospital.[a]

(*Continued from p. 440.*)

After separation into the two fluids, TO and TR, one finds that TR contains the violet cloudy appearances, and the blue-coloured masses in TO. A further difference exists in the fact that by adding 50 per cent. of glycerine to TO, it suffers no change, while a white, flaky precipitate is produced with glycerine in TR, leaving behind a perfectly clear watery fluid. On another occasion I shall report on further interesting chemical differences.

This behaviour towards glycerine showed that TR contained mainly such constituents of tubercle bacilli as are insoluble in glycerine, and so remain behind when one makes a glycerine extract, while TO contains the parts soluble in glycerine.

Accepting these facts, the trial of the two preparations on animals and man is quite in accord with them. TO in its qualities is very closely allied to ordinary tuberculin. It corresponds in its action almost exactly to the preparation TA, which I have described above, with the exception that one need fear no production of abscesses with TO. But it has also only very slight immunising qualities. TR, on the contrary, has most certainly an immunising action; it produces reactions also in tuberculous subjects if too large doses are employed, but its action is quite independent of these reactions. While it is a matter of necessity that reactions be elicited by using ordinary tuberculin as well as TA and TO to obtain curative effects, I try in using TR to avoid reaction as far as possible, and endeavour, by gradually increasing the dose, as quickly as possible, but with all possible consideration, only to make the patient

[a] Read before the Dublin University Biological Association in December, 1897.

insusceptible to larger doses of the material. I mean, I immunise him against TR, and what I regard as acceptable, by doing so I immunise him against tubercle bacilli themselves.

That TR comprises all the immunising factors present in cultures of tubercle bacilli is proved from the fact that a man who has been immunised against TR does not react any longer against large doses of ordinary tuberculin or of TO, even when reactions have been almost completely avoided during the process of immunising: he is in fact protected against all the constituents of the tubercle bacillus. As this action of TR seemed to me a very important one, I have proved it in a large number of cases to avoid any doubt being cast upon the correctness of the observations.

In order for TR to act up to its fullest extent, there are, I admit, some indispensable conditions to be fulfilled during its production.

To begin with, every culture of tubercle bacilli is not suitable for the production of an effective TR. I have made experiments of late, in company with Dr. Vagedas, which have convinced me that tubercle bacilli are not at all equally virulent, as has been hitherto supposed. These experiments are to be published later on. Pretty considerable diminution in virulence occurs even in cultures that have been freshly grown. Cultures which have been transplanted in the laboratory over a long period of time have usually lost their virulence very much. In preparing TR only highly virulent cultures should be used. Ones that are slightly virulent produce also only slightly effective or quite ineffective preparations. The cultures must not be too old; they must be worked up in as young a state as possible. The drying must only be undertaken in a vacuum exsiccator. Other manipulations easily bring about such changes that the substance becomes less soluble and consequently less effective. All introduction of chemical substances, be it ever so slight, is to be absolutely avoided, as TR seems to be very sensitive towards them. For the same reason the completed preparation, and also the cultures that are going to be worked up, must be protected from light. The cultures must be worked up in as fresh a condition as possible—that is, immediately after they have become dry. Keeping them a long time injures them. One cannot work up larger quantities than 100 grams with the hand, and it takes a great deal of practice to master this quantity.

A sufficient separation of TO and TR is only obtained when the perfectly clear TO has taken up at least 50 per cent. of the solid substance, otherwise there remains in TR a more or less consider-

able quantity of TO, and one gets undesired reactions after injecting it. Anyone who wishes to undertake the making of TR must recollect that highly virulent living tubercle bacilli, in a dry state, have to be worked up, and that it is impossible to prevent the production of dust. I look on the danger associated with this as no small one, and I must admit that during these experiments I had the feeling as though I had to deal with explosive matter. I did not use a respirator, because it did not appear to me to offer any sufficient protection. It is impossible to prevent the bacilli dust settling on the clothes, and scattering itself about the room. I therefore consider it quite out of the question to be able to produce TR in at all large quantities by hand service. A uniformly good preparation, sufficient for all purposes, can be produced in large quantities by suitable machinery in a factory, and thus avoid the menacing danger of the working up process. Arrangements have been concluded, at my instigation, with the dye works of Messrs. Lucius and Brüning, Höchst-on-Main, to carry out the work wholesale, and they can supply the preparation TR as well as TO prepared after my method. Twenty per cent. of glycerine is added to the fluids to keep them, which from my previous experience is a sufficient protection against decomposition, and does not cause precipitation in TR.

The use and administration of the preparation are quite simple. Injections are given in the back by means of a syringe that can be well sterilised, just as in the case of tuberculin.

The fluid contains 10 mg. per c.cm. of the solid substance, and has to be diluted for use with physiological salt solution (*not carbolic*) to bring it to the requisite dose. One begins with $\frac{1}{5\,0\,0}$ mg., which is such a small dose that only exceptionally does a reaction occur, but should this happen it must be further diluted. Injections should be made about every second day, gradually increasing the dose in such a way as to avoid temperature elevations of more than $\frac{1}{2}$ degree (Centigrade). Any elevations of temperature that have been caused by the injection must have completely disappeared before a fresh injection is given. I have usually gone up to 20 mg., and then, if no reaction followed this dose, have stopped or given injections only at long intervals. When one wants to immunise animals one gives them, to begin with, as much as they can absorb—guinea-pigs, for instance, 2 to 3 mg., larger animals proportionately more. In case of tuberculous animals one must naturally begin with much smaller doses, as under some circumstances a dose of 2 mg. may be fatal.

I shall here only give a few brief remarks about the effects to be obtained with TR, and reserve a more complete account of them for a later period—that is, with reference to the treatment of patients.

In immunising healthy animals, and in treating the affected ones, the whole thing depends on introducing as large doses as possible. They must of course be measured in such a way that they will be well absorbed, but this is easily done by observing the amount of infiltration at the seat of inoculation. By observing these conditions I have succeeded in completely immunising a large number of guinea-pigs to such an extent that they could bear repeated inoculations with virulent cultures without becoming infected. The inoculation marks disappeared without leaving any trace behind, and the inguinal glands close to the seat of inoculation showed no change, in some cases months after the inoculation, while in others they were only slightly enlarged, but showed no sign of tubercular change; tubercle bacilli could never be found in them.

In a certain number of animals immunisation was not quite completed at the time of the first inoculation.

In these cases the inoculation wound had healed, but the inguinal glands were caseous. The internal organs of these animals were free from tuberculosis, while animals on which control experiments had been made showed far advanced general tuberculosis of lungs, spleen, and liver. Some animals showed tubercular disease of the lungs, while the liver and spleen had either no trace of disease or only slightly so; and I believe that in these cases we must assume that a slight degree of immunity was present at the time of inoculation.

Apart from these cases, I have seen such conditions only in guinea-pigs that had been treated with tuberculin, in a stage of the disease, however, that was too far advanced. In guinea-pigs which had been infected with tuberculosis, and then received injections of TR, retrograde changes were always found, in a more or less advanced degree, in the organs that were tubercular when the treatment was commenced.

For instance, in the liver and spleen such changes as these were observed. In the liver, instead of yellow necrotic nodules on the surface, one could see furrows and depressions which gave the organ a peculiar knobby appearance. The spleen also had a shrivelled appearance, which in some cases was so far advanced that only quite minute traces of the organ were left, to find which required very careful searching for.

From these experiments I have got the general impression that complete immunity takes place about two or three weeks after the application of large doses.

Guinea-pigs, in which the disease, as we know, takes a very rapid course, can only be successfully cured when the treatment is commenced early—that is, a week or two after inoculation.

This last rule obtains also in the case of tubercular human beings, in whom the treatment must not be commenced too late. At the beginning such small doses are given that no immunity worth mentioning is to be expected from them; and it is only when the doses have reached a large size—·5 to 1 mg.—that unmistakable immunity effects make their appearance. There is, however, a limit to the use of the preparation which must be laid down at the very beginning. A patient whose condition is such that he cannot have more than a few months to live, can expect no benefit from the use of it. It is also just as useless to treat patients with it who suffer from a secondary infection, such as might be caused by streptococci, and in whom the septic process has thrown the tuberculosis quite into the background. It is obvious that an immunity against tuberculosis can exercise no influence, or, at all events, none directly so, against streptococci and other pathogenic micro-organisms which often play such a fatal part in advanced tuberculosis.

Such conditions can usually be recognised by the state of the temperature, and in respect to this experience has taught us that patients whose temperature goes above 38° C. (100·4° F.) are only exceptionally suitable for the specific treatment of tuberculosis.

I have used the preparation in a fairly large number of suitable cases, chiefly in lupus cases, and I have attained a considerable improvement in these cases, far in advance of the success I obtained with ordinary tuberculin or with TA. I say improvement intentionally, although a considerable number of the cases might be designated as healed according to ordinary ideas; but I consider it premature to use the expression "healing" until a sufficiently long period has passed over without relapses occurring. In lupus it was especially noticeable that local reactions were very slight, and nevertheless a continuously progressive improvement took place. In phthisical patients, also, there were none of the violent reactions so well known after the use of tuberculin, and which caused transitory infiltration in the diseased parts of the lungs. With TR a slight increase of râles was the only local symptom, and this soon disappeared. After a few injections the expectoration diminished

in quantity, and finally often dried up completely, and of course, tubercle bacilli were no longer to be found. The râles disappeared in a corresponding manner over the diseased area of the lung, and the area of dulness diminished.

In no case have I seen any alarming complications or injuries to health in other ways, such as might be ascribed to the preparation. Almost all the patients gained in weight from the beginning, and at the end of the treatment had put on weight to quite a considerable extent. The changes in the temperature curve were especially striking in those cases which had the well-known daily temperature variations of 1° C. and over. The irregular up and down line became more and more even, and gradually came down to the normal, almost straight line, just below 37° C. (98·6° F.)

I do not venture to assert that the method practised by me up to this, in the use of TR, is the best. I mean starting with very small doses subcutaneously, and gradually increasing them up to about 20 mg. Possibly other methods may gain the object in view quicker and better; perhaps, also, a combination with TO, or with serum-preparations obtained from TO or TR; but only further experiments will teach us this.[a]

At all events, I believe I can affirm with certainty that further improvements of the preparations themselves are not to be expected. These consist of highly virulent, fresh cultures, which were in a living state directly prior to the manufacture, and are brought into a soluble condition without the action of chemicals.

Nothing better of this kind can be produced: and whatever is to be gained with cultures of tubercle bacilli must be gained with these preparations.

LEPROSY CONFERENCE.

THE following in brief are the conclusions of the Berlin Conference, October, 1897:—1. The Bacillus lepræ of Hansen is the virus of leprosy. 2. The mode of entry into the human organism is unknown. 3. Leprosy is a contagious disease, probably not hereditary. 4. Treatment has so far been unsuccessful. 5. Prevention is best secured by isolation. 6. Compulsory notification is recommended. The next Congress meets in 1900, probably in Paris.—*The Canadian Practitioner.*

[a] Experiments are at present being made with TO and TR with the object of obtaining a serum.

The Sero-therapy of Yellow Fever.[a] By Professor Don José Sanarelli, Director of the Institute of Hygiene, Monte Video. Translated from *La Semana Médica* by George Foy, M.D., U.C., Va.; F.R.C.S.; Hon. Fellow of the Southern Surgical and Gynecological Association, U.S.A.; Member of the Society of Anæsthetists, London; Surgeon to the Whitworth Hospital, Drumcondra.

The one hope of a trustworthy remedy for yellow fever lies in the serum treatment.

In the hope of securing a serum possessed of curative and preventive properties we have given close attention to two important phenomena—immunity to the virus which is produced in those born in, or having lived a long time in, the country in which the disease is endemic, or as popularly said, "the acclimatisation," and the acquired immunity secured by an attack of the fever. This last fact is noticeable in every case which has suffered from a severe attack.

In respect to acclimatisation, it is clear that the immunity it confers cannot be considered as due to any special habits physiologically acquired by adaptation to physical surroundings, but are to be explained perfectly by the phenomenon of acquired immunity to the poison of yellow fever, which our personal experience makes intelligible.

The easy and quick way in which the system becomes accustomed to small doses of the virus is very clearly manifest in our experience in the human being, and gives the idea that the condition is naturally acquired. The serum intended for the prophylaxis and cure of yellow fever in man is obtained from animals inoculated with the *Bacillus icteroides*.

It may be considered a trustworthy serum, not only having been obtained from animals which have borne lethal doses of yellow fever virus; but its power as a prophylactic and curative agent has been experimentally proven on rabbits.

I think it unnecessary to enter into the details of the method of preparing the serum; it is prepared by the methods and in accord with the general principles of immunisation, and is singular only in the difficulty of obtaining animals capable of tolerating strong doses of the virus, and producing a serum possessing prophylactic and curative properties. This result we obtained in horses, after

[a] A paper read before the Society of Medicine and Surgery of St. Paul, Brazil.

twelve or fourteen months continuous and careful experimentation. The method of producing the yellow fever serum is not identical with that of diphtheritic serum. Until to-day I was unable to find in the bodies of inoculated animals the antitoxic substance.

Dogs, which after a year or more of inoculation with large doses, came to tolerate quantities of the virus which were greatly in excess of the ordinary lethal dose; they showed symptoms of toxicity by vomiting, falling down prostrate, and acute pyrexia after each injection.

I give the following example of a dog which was well inoculated, and which had been under treatment for more than fifteen months, and produced an excellent prophylactic and curative serum for rabbits:—In consequence of a phlebitis, with obliteration of a vein, an accidental multiplication of the *Bacillus icteroides* injected; died from the virus in forty-eight hours; presented at the autopsy a wasting of viscera, and the liver was so altered that it yielded on chemical analysis 32·72 of fat—a quantity of fat in excess of that cited as usual in yellow fever, and greater than that given by experimental poisoning with phosphorus or arsenic.

This example is cited as evidence that the condition of inoculation is not for the present characterised by the presence of antitoxin substances, and that the anti-yellow fever serum is alone able to exercise an action curative on the poison formed in the body until it amounts to a lethal quantity. This serum, as many others well known, possesses powers against the microbes, but has no antitoxin properties; they are bactericides, but not antitoxins. Their use in the treatment of yellow fever in the human being is efficacious only in the early stage of the disease—a very great obstacle to the treatment of the disease by sero-therapy.

For those who never have had personal experience of yellow fever, to all the European physicians who have not seen the disease, the ordinary account of the sickness is wholly misleading. They compare it to a milder type of cholera, and think that the principal lesion—the seat of selection—is to be found in the gastro-intestinal tube; to them the legend "black vomit" represents the typical and most constant phenomenon. For this cause also the greater number of micro-biologists think that in a certain bacillus of extraordinary properties, whose field of action is the stomach, which an enthusiastic discoverer who is well known hastened to call "the crucible of yellow fever." Nothing could be more arbitrary or more false.

Studying carefully a large number of patients with extreme

accuracy, we find a patient suffering from pyrexia, and with the general symptoms of toxæmia, whose more grave symptoms are far removed from the gastro-intestinal tube.

In yellow fever, as in many other general fevers, the digestive tube is affected, and many times it has a tendency to bleed, provoking also, as is well known, the "black vomit," but the systems most generally and seriously attacked are the renal and the nervous.

Few of our patients to-day present lesions of a serious nature in the digestive tube, they are albuminuric, anuric, or delirious. Further, in many epidemics "black vomit" and intestinal bleeding are the exception; but the symptom which appears early—the unfailing and inexorable precurser of death—is anuria.

Well then, the kidney being attacked by the toxin of yellow fever, the system has also uræmic poisoning to struggle against—every effort for life trusting to medicine, every trial of sero-therapy ends in failure.

To pretend to cure a patient when delirium or anuria is present simply implies submitting the unfortunate to the caprice of fortune; and the issue in such a case has no value as evidence for or against the use of serum-therapy.

At the beginning of this year I possessed some good serum—very efficacious on the animals of the laboratory. It was procured from two horses, A and E, the former of which was under treatment for eighteen months and the latter for a year. I had afterwards a bull, which I kept under treatment for a year, but the serum he furnished was of little value. I was anxious to test the serum on a human patient, and I am indebted to my friend and collaborateur, Dr. Seidl, Director of the Hospital of Saint Sebastian, of Rio Janeiro, for the first observations on the practical value of the anti-yellow fever serum.

Dr. Seidl, working with Drs. Tasjardo, Conto, and Da Rocha, was supplied with this horse serum, and used it, together with some which I had sent in December, 1897, on eight patients who presented in divers conditions the symptoms most characteristic of yellow fever. Of these eight patients five were already in the fourth day of the fever, and in a very serious condition; four were anuric and delirious. The remaining patients were also very seriously ill; although neither anuric nor delirious, yet they were albuminuric. One was in the second day of the fever, and the remaining two were in the third day. These three patients recovered after energetic treatment with the serum, and in the temperature charts sent to me by Dr. Seidl it may be

plainly seen that each injection of the serum was followed by a fall of temperature, a cessation of the more grave symptoms, and finally the beginning of a rapid convalescence.

The first investigations of the value of the serum presents a story whose lesson is easy of application. I did not hesitate to apply more generally the serum, to fully test its value and to make known with exactitude the indications for its use in the treatment of yellow fever. The occasion came at an opportune time, thanks to an invitation received in January last from the authorities and the medical profession in the Province of Saint Paul in Brazil.

The Province of Saint Paul is the richest in the Republic of Brazil; it is the loadstone for emigrants, fallen to-day on a sad period of trial which threatens to be fatal to her. The yellow fever, which until these last few years never extended beyond the sea-coast, has now advanced, as a fire, into all the cities and towns of the interior.

The spectacle is sad, the impression indescribable—most disheartening to the traveller as he journeys through these beautiful and rich lands where the gifts of civilisation and the labours of the immigrants have, in a few years, created centres of industry and commerce which yesterday were hives of energy, of prosperity, of riches, and to-day are ruins—homes for the outcast—breeding places of pestilence.

The medium of this rapid and widespread diffusion of the plague in the Province of Saint Paul has been the immigrant. Thousands and thousands of these unfortunates disembark yearly in the ports of Santos or Rio Janeiro, where yellow fever ever reigns as an endemic plague. Many of these, all of them during bad periods of the plague, contract the disease, and travel infected to die in the cities and towns of the interior, where they are said to create new foci of infection.

The yellow fever found in the interior is always much more severe, and has a higher mortality than that observed on the coast, as, for example, in Rio de Janeiro, Pernambuco, and Santos. In these latter cities the immigrants are simply wayfarers. The farm-labourers, which form the greater number of them, seek work on the farms in the interior, and the more intelligent artisan, from dread of the fever, also pushes on to the high lands of the interior to seek work in its towns and villages. It follows as a natural result that in Rio de Janeiro, Pernambuco, and Santos the yellow fever attacks with most frequency the indigent and the indolent who stay in the city slums, or those somewhat acclimatised by a

short or long residence, and the mortality averages 50 per cent. of those attacked.

To return to the consideration of the towns in the interior, the sick immigrant there encounters a new element. A European, recently landed, not accustomed to the climate, the habits or the life of an inter-tropical dweller, is weak, disarmed, and receptive of the endemic. Amongst these unfortunates the mortality of this fearful pestilence reached the dreadful percentage of 80 to 90 of those attacked. The recent outbreak of the fever in Camprinas, de Rio Claro, Araraquara, Yahu, Limeira, Pirassunanga, Ribeirão Preto, Ribeirão Bonto, San Carlos de Pinhal, Ita, Descalvados, and elsewhere little known in Europe, where in general they know very little of that which passes on the American side of the Atlantic, present such scenes of horror as are alone comparable to the legends of the invasions of pestilence during the Middle Ages in Europe.

The Governor and the Council of the sanitary services of the Province of Saint Paul, justly occupied with this grave state of affairs, deeply grieved, and pledged to protect the people, desired that my first experiments with serum should be made under conditions which allowed of the formation of a definite judgment on its value. They constituted a commission of distinguished clinicians, consisting of Senors Dr. Silva Prito, director of the sanitary services of the province, Drs. C. Ferreira and Vicira de Mello, Sanitary Inspector, and Dr. Espenheira, Director del Hospital de Aislamiento of Saint Paul. Afterwards the following were added to the Commission—Dr. Ad. Lutz, Director of the Institute of Bacteriology of Saint Paul, and his assistants, Drs. A. Mendonca and Vital Boazil.

The place selected for the experiments was Saint Charles of Pinhal, a city of about 25,000 inhabitants, situated about 820 miles above the sea-level and eight hours by rail from the city of Saint Paul. In Saint Charles the yellow fever has made a permanent home, putting to flight the inhabitants, who seek refuge in the surrounding plains and sow death amongst the few labourers who seek shelter in the silence of the deserted streets and abandoned houses.

Here is the tale of my labours, with which I was entrusted by the official Sanitary Commission of the Province of Saint Paul, as told in the meeting of the 8th of last March, before the Society of Medicine and Surgery in that city. The serum I proposed to use in these first cases was obtained, as already stated, from three different animals.

The serum of the horse was that with which I had experimented on animals and had found its activity truly remarkable, and which I had further tested on my own person a short time before leaving Monte Video, and during my stay in Saint Charles of Pinhal. These injections given in doses large enough to convince me that the serum of the horse inoculated against the yellow fever was able to resist the virus of the fever, and, consequently, could be used without danger in the treatment of the sick.

In considering the serum of the ox, or serum F as it was commonly called, the experiments convinced me that its curative power was very little, for which reason I decided not to use it without the greatest care, and solely as a prophylactic. I have never had occasion to try this serum on the human being.

On arriving at Saint Charles we found the hospital wholly deserted of patients. The greater number of them overcome by a senseless and traditional horror of hospitals prefer to find death in their homes than secure safety in a hospital. Two patients, lads, whose father had died in the hospital, were admitted. Both of the little patients presented the characteristic symptoms of the disease, including "black vomit." Luis V., the elder patient, was in the second day of the sickness, and Asuncion V., his brother, was in the third day. They were immediately submitted to treatment, and the results were promptly seen in a lessening of the pyrexia, a disappearance of the albumen in the urine, and a general improvement. Convalescence quickly followed. During the whole period of treatment Asuncion got 20 c.c. of serum, and Luis 65 c.c. Encouraged by this first success, we decided to continue on the same line—that is, to treat only such cases as had not advanced beyond the initial stage, and to record our observations of such cases, and to treat them with moderate doses of the serum given hypodermically. Up to the 17th of February we admitted six other cases. One of these, Rafael M., was albuminuric, his urine was scanty on admission to hospital, and we failed to give him any relief. As we prognosticated, anuria resulted, and he died on the fourth day after admission. Of the other five—four convalesced after more or less severe attacks, which necessitated a prolonged treatment with serum injection; the fifth case succumbed from cerebral troubles on the tenth day.

These we call our first series of cases (2 deaths and 6 cures)—a result which was very valuable to us as an evidence of the effects of the treatment by serum in small doses. In the first place, these doses appeared too small, and secondly, the result was clearly that the first hypodermic did not produce a cessation and arrest of the

infection of the fever, so that in a short time the virus resumed its sway. Small doses failed to produce any appreciable good effect, although repeated frequently.

In cases which terminated in recovery, after an elevation of the temperature, more or less marked—which rise of temperature followed almost without exception as a specific and salutary reaction after the first hypodermics of the serum, and in every case where the vein was injected—the fever disappeared to return no more, and during the following days the thermometer recorded nothing more than a few fleeting and insignificant rises of temperature. During this time the ordinary symptoms of the fever disappear, and the case proceeds without accident to recovery. We have found the serum treatment to be free from the phenomena of mucous hæmorrhages, and, in referring to the function of the urinary organs, we notice that the serum produces a marked effect for good as a diuretic, in the majority of cases producing polyuria.

Now, if we consider that in the actual epidemic in Saint Charles the most important and serious symptom was anuria, the beneficial effect of the serum as a diuretic on the complication most insidious and to be feared of the disease will be appreciated.

In some patients of extreme sensibility, who appeared to be but little benefited by the hypodermics, it occurred to us to use intravenous injections of the serum.

The technique of these intravenous injections, which were always practised on the superficial veins of the forearm, is so easy and safe that its use ought not to be so rare in the practice of medicine.

The effects of these intravenous injections of the anti-yellow fever serum are very interesting.

After the injection, when the dose is very small (15 c.c.), the patient remains perfectly tranquil. But after a few minutes a slight reddening of the skin begins to appear over the whole breast and face; the conjunctivæ become injected, the pulse becomes stronger but less frequent, and almost becomes normal. The patient has a feeling of warmth in the head, he has a few attacks of coughing, and sometimes a desire to vomit, and occasionally he suffers from a mild and short attack of urticaria, appearing in different regions of the body.

Collecting all these preliminary observations, we resolved unanimously to adopt a method slightly different in our use of the serum in the succeeding cases that called for treatment, and it was decided to intervene quickly, administering full doses of the serum, adopting as our ordinary practice the intravenous injection, and to inject in

one dose a sufficient quantity of the serum to arrest the infection of the veins.

This method, which for convenience we called the "quick method," has given us much better results than the former, and we are able now to look upon it as complete.

I believe it useful to note that the intravenous injections of strong doses of serum should be carried out with certain precautions, which we have recognised by the observation of the variable amount of tolerance in patients submitted to the serum treatment.

Cases met with in the initial stage of the disease are much more sensitive to the remedy, and the reaction is much more energetic and prolonged than in those in whom the fever is well established. Yet leaving aside this distinct reaction, to explain which a theory is easy of invention, but which I think at present a profitless labour to discuss, I have observed that certain individuals and certain patients with pre-existing organic lesions, such as enlargement of the liver and the spleen from malaria, myocardic lesions and so forth, require much care in apportioning the intravenous injection dose.

Bearing well in mind all these things we commenced the new series of cases with a young labourer, Pascual R., who fell sick on the 17th February, with all the symptoms of a severe attack of yellow fever; violent rigors, headache, pains in his bones, sharp epigastric pain, marked injection of the face, temperature 102·5°, pulse 104. We immediately gave him two injections of 20 c.c. each, one intravenous and the other subcutaneous. Five minutes afterwards he presented an intense reaction, the skin became a bright red, the pulse fell to 88, there is a slight cough, and a general and intense agitation with rigors. Soon afterwards the temperature rose to 105°. Before bed hour the patient got a third injection (subcutaneous) of 20 c.c. of serum. The following morning the temperature fell to 102°. The case continued to progress, and on the fifth day the patient was declared to be convalescent.

This new series of cases, initiated with such a good result, includes fourteen patients, numbered from the 9th to the 22nd, both inclusive. All these cases were admitted to hospital in an advanced state of the fever, and were selected by us as suitable for testing the therapeutic properties of the serum; all cases which presented vague and uncertain symptoms were placed apart from those referred to above. We were, in consequence, dealing with patients in whom to judge by the severity of the initial symptoms we were very unlikely to secure a

favourable crisis. Of these fourteen patients ten recovered under the influence of the serum, each case giving evidence of the characteristic effects of the remedy—the relation between cause and effect being plainly demonstrated.

In some of these the "quick method" promptly changed the type of the disease, cutting short the course of the fever, and getting rid of its typical symptoms, and plainly showing the marked influence of the remedy on the yellow fever. One alone of the patients escaped the physiological action of the serum, Adrian H., a man of extraordinary strength, who was sufferiug from one of the most violent forms of the disease. Trusting, perhaps too much, in the natural resistance of the patient, we did not employ as large a dose of the serum as the case demanded, or as we otherwise should have done; the following day there appeared such an alarming nervous condition that we considered further treatment useless.

In considering the three cases which ended fatally in this our second series, it is necessary to remember that their condition on admission was deplorable, and offered no hope of success.

The first of these cases was that of a young Portuguese, of very limited intelligence, who rebelled against all treatment, and threatened personal violence to his attendants; with much difficulty some hypodermics of serum were given, but no intravenous injections would be attempted. He died five days after his admission to hospital.

The second case was that of a young woman, Louisa P., who was within one month of her labour, and was still suckling two children. She was admitted on the third day of her sickness in a truly deplorable state of emaciation. She was brought in by her husband, who became an inmate a few days afterwards. Two hypodermics were given, the "quick method" in this case being considered dangerous and useless. Her strength rapidly run down, delirium appeared, and death soon followed.

The third case was that of an old man, G. P., who had a large liver, a greatly enlarged spleen, and a cachetic condition of body generally, with marked mental weakness. We commenced treatment by two injections—one intravenous of 50 c.c. of serum, and the other hypodermic of the same amount. The congestive phenomena, which followed almost immediately, were of such an alarming character that we feared some great lesion on the circulatory system existed and had been unobserved by us. Under the circumstances we discontinued the treatment and kept

the patient under observation for the few remaining days of his life.

In the total number of patients treated, numbering 22, we lost 6, statistics which I look upon as very good. We came to Saint Charles not to collect statistics but to test sero-therapy and report on the serious nature of the epidemic then existing there, and we have shown the good results of our treatment in all cases in which it was commenced sufficiently early; even taking all cases that came under our care the mortality did not exceed 27 per cent.—a death-rate which contrasts favourably with all other known methods of treatment. We have also found that the longer the period of inoculation of the animals yielding the same is continued the more active and trustworthy is the anti-virus; our practical experience of the drug has also enabled us to draw up more accurate rules for its administration. The treatment compares well with that adopted in Rio Janeiro, where the municipality returns show a death-rate in those attacked of 45 to 50 per cent., and of Saint Charles where it reached 80 per cent., and as we have shown above our fatal cases were such as offered no hope of recovery no matter what treatment was followed.

Inoculation by the serum as a prophylactic offers no difficulty, now that the remedy can be furnished in unlimited quantity, and it is the sole remedy against the recurring epidemics that are depopulating the country and converting its richest provinces into wildernesses.

One opportunity occurred for testing the prophylactic properties of the serum. In the prison of Saint Charles of Pinhal an outbreak of yellow fever took place in February last. The first victim was a prisoner who had been attacked suddenly; he, with others, lived in the common room under hygienic conditions which were far from good. The day following that on which the prisoner took ill, the sentinel, who was in charge of the common room was seized. A few days after another prisoner became a victim to the disease, and the prison became a focus of infection; up to this time no case of yellow fever had ever been known to occur in it. There seemed no hope for the unfortunate prisoners, and it was reasonably feared that they would one by one die off, as had happened in the prisons of Rio Claro, Linairo, and other cities of the Province of Saint Paul. One method alone seemed capable to avert the imminent danger. We visited the prison and inoculated all the prisoners and officers, except one who asserted that he was immune, having had the fever. Amongst others we inoculated

two soldiers who came from Europe a short time before. The effect of the inoculation was all that we hoped for. No fresh case of yellow fever occurred in the prison, and it ceased to be a focus of infection.

This good result was obtained under most unfavourable conditions; not only was the prison overcrowded and unsanitary, but we had run out of the horse-serum, and were dependent on the ox-serum which from experience we knew had not the same therapeutic power.

It is not difficult to recognise how valuable such a trustworthy prophylactic should be on board ship and in quarantine stations.

The distinguished bacteriologists who formed part of the scientific commission, Drs. Lutz, Mondouca, and Vedal Brasil, have isolated the *Bacillus icteroides* from the blood of three patients during the initial rigor. This result, obtained by these distinguished bacteriologists, was confirmed in all cases by the rapid reaction to the serum injection.

The Government of the Province of Saint Paul, from the report of the official commission who observed in Saint Charles of Pinhal the results of the serum treatment, curative and preventive, against the yellow fever, have ordered the building of a sero-therapy Institute for the treatment of yellow fever in the capital of the Province.

This institution will be completed in a short time, and will then enter on its mission of spreading the knowledge of sero-therapy, and making more practicable and safe the treatment, preventive and curative, of this dreadful (*indomable*) disease, which is called "the scourge of the Continent of America."

TEMPORARY INSANITY FROM THE USE OF SULPHATE OF ATROPIN IN THE EYE.

Dr. A. H. Edwards reports the following cases of temporary insanity from the use of sulphate of atropin in diseases of the eye (*Am. Pract. and News*):—Case I.—A white adult man came to have a cataract operation performed. A weak solution of the sulphate of atropin was instilled three times into the eye, and in a few hours after the last instillation the patient lost his mind. Case II.—A negress came for a cataract operation. On the instillation of the drug she became insane. On her recovery he again used the same drug, and it had the same untoward effect as before. She was in good health, and did not dread the operation.

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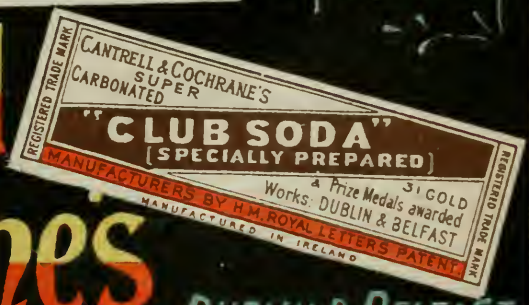

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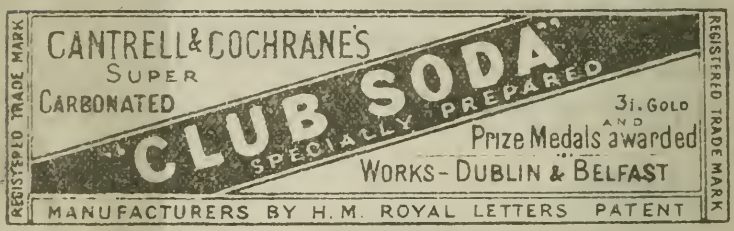
MANY of the non-intoxicating beverages introduced as substitutes for alcoholic drinks tend, either in form or flavour, to directly frustrate the cause they professedly serve. The cups which cheer but do not inebriate are not so common, but when a really palatable and wholesome drink of the kind is found, it should meet with all the encouragement temperance advocates can accord. This, at least, would appear to be the view of Mr. S. C. HALL, the venerable apostle of total abstinence. In a late number of *Social Notes* he says :—"I have looked about for something to drink, and I think I have found it—pleasant, palatable, healthful. I refer to the Ginger Ale manufactured by Cantrell & Cochrane (of Dublin and Belfast). I know of no drink so delicious, and I believe it to be as healthful as it is agreeable." This is praise from the Sir Hubert Stanley of temperance, and where he leads, the public may safely follow.—*Court Circular.*

A SPECIALITY.



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SECTION OF PATHOLOGY.

President—J. M. Purser, M.D.
Sectional Secretary—E. J. McWeeney, M.D.

Friday, February 25, 1898.

The President in the Chair.

Malaria.

Dr. J. B. Coleman exhibited blood slides from a case of tertian ague, showing the different stages of development of the *Plasmodium malariæ*. He said that although malaria was unknown in Ireland now, it was not uncommon in the vicinity of Dublin in the early part of the present century, and he quoted some extracts from Graves's "Clinical Lectures" in support of this statement. Dr. Coleman's patient was a soldier, who had returned from India six months ago, and who was admitted to hospital with well-marked tertian intermittent fever.

Prof. O'Sullivan showed specimens of the malarial parasite. The case was that of Dr. H., residing in the Chota Nagpur district in Bengal, who had contracted a simple tertian ague in December, 1896. The examination was confined to a single attack, which Dr. H. allowed to run its course without treatment. Shortly before the next attack was due he took quinine, and although the attack took place in a mild form, there were very few parasites to be found in the circulating blood, and shortly afterwards they had entirely disappeared.

The fit began at 1 p.m. on Saturday, December 18; blood was taken at 2 p.m., 4 45 p.m., and 11 45 p.m. on Saturday, and at 9 30 a.m. on Sunday.

Specimens taken at 2 p.m. (temperature 102°) showed chiefly a delicate ring form, half or less than half the diameter of a normal

red corpuscle. The ring was circular or slightly oval, with a thickening at one side extending over one-third of the circumference, and a small, deeply-stained nodule opposite to the centre of the thickening. In a few cases the ring showed no thickening or nodule. In addition there were some segmentation forms, containing 17 to 20 spores in two rows, and pigment, which was in some cases diffused in coarse granules through the body; in others, collected in a ball in the centre. In the next two specimens (4 45 p.m., temperature 103·2°, sweating stage, and 11 45 p.m., temperature 98·5°) nothing but ring forms were to be seen, showing, however, signs of further development—*e.g.*, pigment granules in the thickened part and formation of a small, clear body, staining lightly with methylene blue at the side of the thickening. In some cases two rings and even three were found in the same corpuscle. These joined at a point in their circumference at the edge of the thickening.

In the specimens taken at 9 30 a.m. on Sunday no ring forms were found; the thickening had developed into a pigmented body as large or larger than the original ring, traces of which, with its nodule, could often be made out.

Dr. E. J. McWeeney said he had never seen so beautiful a demonstration of the parasitology of malaria. What was particularly beautiful was the comparatively unstained appearance of the nucleus in each of the segments of the rosette to which Professor O'Sullivan had drawn attention. This nucleus of the protozoa, or, at any rate, of the lower protozoa, must be something quite different in its chemical characters from the higher series and certainly of the metazoa. This nucleus does not appear to contain chromatin, which has so strong an attraction for the basic anilins and for nuclear stains such as hæmotoxylin and carmine. He asked what method they had adopted for fixing the blood specimens? The fixing was admirable and faithful, and the biconcavity of the blood discs extremely well shown.

Surgeon-General Potter did not think that the parasite was *different* in the *different* forms of malaria. He had himself suffered for years, more or less, from daily attacks of malarial fever, at times being confined to bed from very severe attacks. He thought that the expression "malarial poisoning" was the best name for the disease. Speaking generally, quinine was the best treatment, but, in some cases, quinine was absolutely useless, and then arsenic was often given with success. There was no doubt that malaria had a very injurious effect on the general health. He considered

change of air as an additional treatment very good. He thought that the wearing of flannels had a most beneficial effect in warding off malaria and other diseases. Hypodermic treatment of ague had not given good results.

Dr. A. R. Parsons said that he had seen the parasite of malaria easily without staining with an ordinary one-seventh objective. In Dr. Coleman's specimen the adult parasite took up practically the whole corpuscle, there being merely a ring round, whereas, in Professor O'Sullivan's case there was comparatively little protoplasm destroyed. He was under the impression that as the tertian parasite grew it gradually destroyed the hæmoglobin and converted it into pigment till it had nearly the whole of the hæmoglobin destroyed; then showed a sporulation and the spores discharged into the blood stream. Did Dr. O'Sullivan think that the parasite in his specimen would have gone on increasing in size?

The President of the Academy (Dr. Bennett) said that it was remarkable the way in which attacks of the fever were brought on by exposure to cold. On the theory of the parasite—what excited the growth of the parasite and what made it take on the form which produced fever owing to exposure to cold? As regards subcutaneous injection of quinine, he had seen a good deal of this himself, and the physicians in Bombay were well pleased with the treatment.

Dr. J. B. Coleman, in reply, said that his specimens were fixed by immersion for about half an hour in equal parts of absolute alcohol and ether. They were then stained with alcoholic solution of eosin, and, having washed off that, methylene blue was applied in concentrated watery solution. He could give no information as to the life of the parasite outside the body, but this subject was being worked at by Surgeon-Major Ross. Infection took place through the respiratory organs. It has been proved that drinking water from a malarial district does not produce malarial fever. Ingestion of blood from malarial patients has also failed to produce the disease, but the disease is constantly produced by intravenous injection of such blood. Replying to Surgeon-General Potter, he said that Golgi in 1885–86 differentiated the parasites of mild tertian and quartan fever; and Marchiafava and Celli and Canalis in 1889–90 discovered a distinct variety of the parasite in æstivo-autumnal fevers. Mild quotidian fever is due to the simultaneous presence in the blood of two generations of the tertian parasite, or of three generations of the quartan, each group being 24 hours older than the preceding one. In quotidian fever

due to the tertian parasite a dose of quinine frequently checked the daily paroxysms by prolonging the interval to 48 hours; further administration of quinine cured the fever completely. The effect of quinine was to prevent the development of the young plasmodia. He agreed with Dr. Parsons that the fully-developed tertian parasite occupied the whole of the red cell. His case did not show segmentation occurring in the regular rosette form; but it must be remembered that in some cases of tertian ague segmentation occurred only in the spleen and bone marrow and internal organs, whilst cases of quartan fever seemed to have segmentation developed more frequently in the ordinary peripheral circulation. As regards the remarks of the President of the Academy about exposure to cold causing paroxysms, he (Dr. Coleman) had noticed that himself.

Prof. O'Sullivan, replying to Dr. McWeeney, said the cover-glasses were fixed by heating to 115° C., and stained with methylene blue and eosin. In reply to Dr. Parsons, Prof. O'Sullivan said the forms found in the early stages corresponded closely with those described by Mannaberg as appearing in the quotidian and malignant tertian fevers, while the segmentation corresponded to the benign tertian, to which the clinical course of the fever, its amenity to quinine, the absence of crescents, and the sporulation in the circulating blood all seem to point. It was also remarkable that, although conjugation forms were present, resembling precisely those which Mannaberg has delineated as the antecedent to crescent formation, no crescents were found, in spite of repeated search during and for some weeks after the attack.

Fracture of Spine and Sacrum.

Dr. E. H. Bennett exhibited the lumbar spine and sacrum of a man who was killed by the falling of a weight of two tons (a parcel of grain being unloaded from a ship), which crushed him on his face on the deck of the vessel. The second, third, fourth, and part of the fifth lumbar vertebræ, deprived of their transverse process and, in part, of their spine, were displaced forwards. The sacrum, with a part of the body of the fifth lumbar, was detached from the innominates, and displaced forwards into the pelvis.

Dr. Knott asked if the extravasated blood reached high up in the vertebral canal? Was there any consciousness left on admission to hospital?

Dr. E. H. Bennett, in reply, said that there was no consciousness left on admission. There was no doubt that the whole spinal canal was injected to the utmost with blood.

Specimen of Complete Osseous Ankylosis of Hip and Sacro-iliac Joints on one side.

Dr. J. Knott made a communication on a specimen of above. He thought that the specimen might be worthya passing notice from the Pathological Section, as the pelvic section of it presented the special deformity formerly described by Professor Naegelé, of Heidelberg, as the "Pelvis Obliqua Ovata," while it offered the additional complication of complete ankylosis of the hip-joint of the corresponding side. Professor Naegelé's experience of this variety of pelvic deformity was that of the difficulty to which it gave rise during parturition, which had been the means of drawing his attention to it. He had never found any external cicatrisation, had never been able to obtain a history of caries, had never known the condition to be diagnosticated during life, and had found it to be invariably fatal to both mother and child. It had been one of the many triumphs of the Dublin School of Obstetric Surgery that the existence of this pathological condition was first discovered during life in the Rotunda Hospital, and by the late Professor Sir Edward Sinclair, of the Dublin University. This fact, and the assurance that he had received from the President of the Academy—the highest authority on the surgical pathology of the skeleton with whom he was acquainted—that the specimen was unique in his experience, had determined him (Dr. Knott) to lay the specimen before the Pathological Section of the Royal Academy of Medicine in Ireland.

Dr. E. H. Bennett said that he had never before seen a similar specimen. From the appearance of the bones it seemed that the sacro-iliac synchondrosis depended on the affection of the hip, and that it was induced by it. The specimen presented an osseous ankylosis from destructive inflammation of the hip-joint distinct from rheumatism.

Dr Knott replied.

Senile Hypertrophy of the Prostate.

Mr. Tobin read the report of a case of prostatic hypertrophy which he had treated twenty months ago by resection between ligatures of a half inch of the vas deferens on each side. The patient had the usual symptoms, and at the time of operation had not passed water without the help of a catheter for three months. He was a nervous man who could not be taught to pass a catheter for himself. Two days after the operation a little water began to pass naturally, and he was discharged from hospital fairly well in three

weeks. His condition, 1st February, 1898, twenty months after the operation, was as follows :—He states that, although he does not lead a temperate life, he has no kind of urinary trouble since he was discharged from hospital, and that his sexual functions are quiescent. A digital examination per rectum finds the prostate very small. A catheter passed after micturition shows the bladder to be empty. The testicles have not diminished in size, and are, as far as one can judge, normal. Testicular feeling is present.

On each side below the point of resection the vas deferens is swollen into what might be called a retention cyst the size of a small walnut. Fluid drawn from one of these swellings was found crowded with active spermatozoa. (The patient was shown at the Surgical Section of the Academy.)

With reference to this case, said Mr. Tobin, I would remark that if the improvement in his condition is due to the resection of the vasa deferentia, I see no way in which the operation could act, since no atrophy of the testicles has occurred, except by inducing a quiescent state of the prostate gland by cutting off the seminal fluid from the regions where its presence has a stimulating effect.

In addition to this case I have in my books quite a number of cases in which patients complained of some condition interfering with the free emission of seminal fluid as existing for some time previous to the development of the urinary symptoms that usually call attention to enlargement of the prostate. I, therefore, beg to submit, for the consideration of the Academy, that the following may in some cases be the explanation of the cause of this disease. In late middle life the incidents that predispose to hæmorrhoids, but especially sedentary habits and the abuse of alcoholic stimulants, and in some cases the after-effects of gonorrhœal inflammation of prostate and bladder, cause a condition that prevents the seminal canals emptying themselves satisfactorily. Consequently there is established a chronic seminal irritation in the vasa deferentia at the point where they are enlarged and sacculated just before entering the prostate, and a vicious circle of incidents leading to chronic prostatic hypertrophy. It is fair to suppose that if the prostate, whether hypertrophied or normal, withers when the testicles are removed, it will grow when it gathers from the testicle increased vascularity and excitement.

Dr. Knott asked Mr. Tobin if he believed that double castration was a cure for senile enlargement of the prostate. Reports were very contradictory.

Dr. E. H. Bennett said that ligature of the vas deferens was

different from castration, as the nerves, &c., supplied to the testis remained. If castration was to affect the nutrition of the prostate, it must do so simply by shutting off the stream passing through the prostate, and not by any reflex action. He thought it a misnomer to call the operation of ligature of the vas deferens castration.

Dr. E. J. McWeeney said that the impression he was under about the influence of castration on producing diminution of the size of the enlarged prostate was that there was some kind of internal secretion poured into the general circulation by the testicle, and the existence of which was necessary for the well-being and full development of the prostate, and that when this was cut off the prostate underwent atrophy. The difficulty that he saw in the very interesting hypothesis put forward by Mr. Tobin was that he failed to understand what would be the cause of obstruction in the emission of semen in the patients he mentioned.

Mr. Tobin, replying to Dr. Bennett, said he had not intended to convey that ligature of the vas deferens was the same thing as castration. He believed that castration was followed by very much more rapid collapse and atrophy of the prostate than ligature of the vas. He wished to point out that some excitement of the prostate that he supposed to be a cause of its increased growth comes from the vas deferens, and he supported that point by the case related. As to Dr. McWeeney's remarks about obstruction, the proof, of course, was difficult. With regard to the view that atrophy of prostate following double castration was due to the cutting off of some secretion which entered the blood, that he believed was hypothetical, and there were some experiments which went against that theory. White, of Philadelphia, had proved that unilateral castration is followed by atrophy of the prostate on that side only. It was, of course, an exceedingly difficult question to solve.

The Section then adjourned.

CONGENITAL DEFORMITIES OF THE FORE-ARM.

The following congenital deformities of the fore-arm are reported by Dr. H. L. Taylor (*Am. Pract. and News*):—Case I.—Girl, five weeks old; absence of both radii. Case II.—Girl, two weeks old; absence of the right radius and both thumbs, with their metacarpal bones. Case III.—Boy, five weeks old; radii abnormally small. Case IV.—Girl, two years and a half old; absence of ulna and fourth and fifth digits, with their metacarpal bones.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. Moore, B.A., M.D., Univ. Dubl.;
F.R.C.P.I.; F. R. Met. Soc.;
Diplomate in State Medicine and ex-Sch. Trin. Coll. Dubl.

Vital Statistics

For four weeks ending Saturday, April 23, 1898.

The deaths registered in each of the four weeks in the twenty-three principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000 :—

Towns	Weeks ending				Average Rate for 4 weeks	Towns	Weeks ending				Average Rate for 4 weeks
	April 2	April 9	April 16	April 23			April 2	April 9	April 16	April 23	
23 Town Districts	31·7	25·5	27·1	25·8	27·5	Limerick -	37·9	47·7	37·9	29·5	38·2
Armagh -	42·8	21·4	35·6	14·3	28·5	Lisburn -	25·7	17·0	17·0	21·3	20·3
Ballymena	28·2	45·1	16·9	5·6	24·0	Londonderry	34·6	12·6	18·8	28·3	23·6
Belfast -	26·2	26·2	27·6	26·4	26·6	Lurgan -	22·8	27·4	36·5	27·4	28·5
Carrickfergus	23·4	23·4	29·2	23·4	24·9	Newry -	20·1	20·1	20·1	20·1	20·1
Clonmel -	58·4	14·6	34·1	14·6	30·4	Newtownards	22·7	28·3	28·3	79·4	39·7
Cork -	44·3	29·8	24·9	31·1	32·5	Portadown	18·6	30·9	30·9	24·7	26·3
Drogheda -	34·2	19·0	34·2	22·8	27·5	Queenstown	17·2	5·7	28·7	11·5	15·8
Dublin -	34·0	23·4	26·4	22·2	26·5	Sligo -	15·2	25·4	15·2	35·5	22·8
Dundalk -	20·9	25·1	8·4	37·7	23·0	Tralee -	78·3	28·0	16·8	33·6	39·2
Galway -	41·5	18·9	56·7	56·7	43·4	Waterford	17·9	33·8	27·9	25·9	26·4
Kilkenny -	33·0	18·9	23·6	33·0	27·1	Wexford -	36·1	31·6	31·6	13·5	28 2

In the week ending Saturday, April 2, 1898, the mortality in thirty-three large English towns, including London (in which the rate was 21·8), was equal to an average annual death-rate of 21·5 per 1,000 persons living. The average rate for eight principal towns of Scotland was 24·2 per 1,000. In Glasgow the rate was 26·1. In Edinburgh it was 22·9.

The average annual death-rate represented by the deaths registered during the week in the twenty-three principal town districts of Ireland was 31·7 per 1,000 of their aggregate population, which, for the purpose of this return, is estimated at 1,007,798.

The deaths from the principal zymotic diseases in the twenty-three districts were equal to an annual rate of 2·5 per 1,000, the rates varying from 0·0 in sixteen of the districts to 11·2 in Tralee—the 14 deaths from all causes registered in that district comprising 2 from whooping-cough. Among the 153 deaths from all causes registered in Belfast are 1 from measles, 1 from scarlatina, 2 from whooping-cough, 4 from diphtheria, 7 from enteric fever, and 3 from diarrhœa. The 64 deaths in Cork comprise one from each of the following, viz.:—whooping-cough, enteric fever, and diarrhœa. The 22 deaths in Londonderry comprise 4 from whooping-cough.

In the Dublin Registration District the registered births amounted to 293—156 boys and 137 girls; and the registered deaths to 235—127 males and 108 females.

The deaths, which are 21 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 35·1 in every 1,000 of the population. Omitting the deaths (numbering 7) of persons admitted into public institutions from localities outside the district, the rate was 34·0 per 1,000. During the first thirteen weeks of the current year the death-rate averaged 32·4, and was 0·3 under the mean rate in the corresponding period of the ten years 1888–1897.

Deaths from zymotic diseases, which had fallen from 30 in the week ended March 19 to 22 in the following week, rose to 34, or 5 over the average for the corresponding week of the last ten years. The 34 deaths comprise 3 from scarlet fever (scarlatina), 8 from influenza and its complications, 5 from whooping-cough, 4 from diphtheria, 1 from ill-defined fever, 3 from enteric fever, 1 (in the Richmond District Lunatic Asylum) from beri-beri, 1 from choleraic diarrhœa, 3 from diarrhœa, 1 from dysentery, and 2 from erysipelas.

The cases of scarlatina admitted to hospital amounted to 47, or 23 in excess of the number of admissions in the previous week. Thirty-four scarlatina patients were discharged, 2 died, and 166 remained under treatment on Saturday, being 11 over the number in hospital at the close of the preceding week. There were besides 16 convalescents at Beneavin, Glasnevin, the Convalescent Home of Cork-street Fever Hospital.

Twenty-four cases of enteric fever were admitted to hospital,

against 21 in the preceding week. Fourteen patients were discharged, 3 died, and 118 remained under treatment on Saturday, being 7 over the number in hospital on that day week.

Deaths from diseases of the respiratory system, which had fallen from 61 in the week ended March 12 to 42 in the following week and 38 in the week ended March 26, rose to 52, or 5 over the average for the corresponding week of the last ten years. The 52 deaths comprise 29 from bronchitis, 19 from pneumonia or inflammation of the lungs, and 2 from croup.

In the week ending Saturday, April 9, the mortality in thirty-three large English towns, including London (in which the rate was 19·6), was equal to an average annual death-rate of 20·2 per 1,000 persons living. The average rate for eight principal towns of Scotland was 24·1 per 1,000. In Glasgow the rate was 26·3, and in Edinburgh it was 17·6.

The average annual death-rate in the twenty-three principal town districts of Ireland was 25·5 per 1,000 of their aggregate population.

The deaths from the principal zymotic diseases in the twenty-three districts were equal to an annual rate of 2·0 per 1,000, the rates varying from 0·0 in sixteen of the districts to 5·6 in Tralee—the 5 deaths from all causes registered in that district comprising 1 from typhus. Among the 153 deaths from all causes registered in Belfast are 1 from whooping-cough, 4 from diphtheria, 1 from simple continued fever, 15 from enteric fever, and 1 from diarrhœa. The 43 deaths in Cork comprise 1 from whooping-cough and 2 from diarrhœa.

In the Dublin Registration District the registered births amounted to 163—73 boys and 90 girls; and the registered deaths to 163—71 males and 92 females.

The deaths, which are 39 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 24·3 in every 1,000 of the population. Omitting the deaths (numbering 6) of persons admitted into public institutions from localities outside the district, the rate was 23·4 per 1,000. During the fourteen weeks ending with Saturday, April 9, the death-rate averaged 31·9, and was 0·7 under the mean rate in the corresponding period of the ten years 1888–1897.

The number of deaths from zymotic diseases registered was 19, being 9 below the average for the corresponding week of the last

ten years, and 15 under the number for the previous week. The 19 deaths comprise 9 from influenza and its complications, 2 from whooping-cough, 2 from diphtheria, 3 from enteric fever, 1 from diarrhœa, and 1 from dysentery.

The weekly number of cases of scarlatina admitted to hospital fell to 30. Twenty-seven scarlatina patients were discharged, and 169 remained under treatment on Saturday, being 3 over the number in hospital on that day week. This number is exclusive of 16 convalescents under treatment at Beneavin, Glasnevin.

Only 10 cases of enteric fever were admitted to hospital, being 14 under the admissions in the preceding week and 11 under those in the week ended March 26th. Twenty-six patients were discharged, 3 died, and 99 remained under treatment on Saturday, being 19 under the number in hospital at the close of the preceding week.

The number of deaths from diseases of the respiratory system was 36, or 12 below the average for the corresponding week of the last ten years, and 16 under the number for the previous week. The 36 deaths comprise 23 from bronchitis and 10 from pneumonia.

In the week ending Saturday, April 16, the mortality in thirty-three large English towns, including London (in which the rate was 19·1), was equal to an average annual death-rate of 19·5 per 1,000 persons living. The average rate for eight principal towns of Scotland was 22·5 per 1,000. In Glasgow the rate was 22·0, and in Edinburgh it was 22·9.

The average annual death-rate in the twenty-three principal town districts of Ireland was 27·1 per 1,000 of the population.

The deaths from the principal zymotic diseases in the twenty-three districts were equal to an annual rate of 2·5 per 1,000, the rates varying from 0·0 in seventeen of the districts to 5·8 in Belfast—the 161 deaths from all causes registered in that district comprising 3 from measles, 5 from whooping-cough, 1 from diphtheria, 21 from enteric fever, and 4 from diarrhœa.

In the Dublin Registration District the registered births amounted to 186—95 boys and 91 girls; and the registered deaths to 182—98 males and 84 females.

The deaths, which are 3 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 27·1 in every 1,000 of the population. Omitting the deaths (numbering 5) of persons admitted into public institutions

from localities outside the district, the rate was 26·4 per 1,000. During the fifteen weeks of the current year the death-rate averaged 31·5, and was 0·7 under the mean rate in the corresponding period of the ten years 1888–1897.

Twenty-three deaths from zymotic diseases were registered, being equal to the average for the corresponding week of the last ten years, but 4 over the number for the previous week. The 23 deaths comprise 2 from scarlet fever (scarlatina), 9 from influenza and its complications, 3 from whooping-cough, 2 from diphtheria, 3 from enteric fever, and 1 (in the Richmond District Lunatic Asylum) from beri-beri.

The weekly number of cases of scarlatina admitted to hospital declined to 22. Fourteen scarlatina patients were discharged, 2 died, and 175 remained under treatment on Saturday, being 6 over the number in hospital at the close of the preceding week. This number is exclusive of 17 convalescents at Beneavin, Glasnevin.

Nineteen cases of enteric fever were admitted to hospital, being 9 in excess of the admissions for the preceding week, but 5 under the number for the week ended April 2. Nineteen patients were discharged, 2 died, and 97 remained under treatment on Saturday, being 2 under the number in hospital on that day week.

The number of deaths from diseases of the respiratory system registered was 32, or 4 below the average for the corresponding week of the last ten years, and also four under the number for the preceding week. The 32 deaths comprise 19 from bronchitis and 11 from pneumonia.

In the week ending Saturday, April 23, the mortality in thirty-three large English towns, including London (in which the rate was 17·9), was equal to an average annual death-rate of 18·1 per 1,000 persons living. The average rate for eight principal towns of Scotland was 22·0 per 1,000. In Glasgow the rate was 22·6 per 1,000, and in Edinburgh it was 19·7.

The average annual death-rate represented by the deaths registered in the twenty-three principal town districts of Ireland was 25·8 per 1,000 of the population.

The deaths from the principal zymotic diseases in the twenty-three districts were equal to an annual rate of 2·1 per 1,000, the rates varying from 0·0 in seventeen of the districts to 5·6 in Tralee—the 6 deaths from all causes registered in that district

comprising 1 from whooping-cough. Among the 154 deaths from all causes registered in Belfast are 3 from measles, 3 from whooping-cough, 16 from enteric fever, and 4 from diarrhœa.

In the Dublin Registration District the registered births amounted to 204—99 boys and 105 girls; and the registered deaths to 156—79 males and 77 females.

The deaths, which are 26 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 23·3 in every 1,000 of the population. Omitting the deaths (numbering 7) of persons admitted into public institutions from localities outside the district, the rate was 22·2 per 1,000. During the sixteen weeks ending with Saturday, April 23, the death-rate averaged 31·0, and was 0·9 under the mean rate in the corresponding period of the ten years 1888–1897.

Twenty-five deaths from zymotic diseases were registered, being 3 over the average for the corresponding week of the last ten years, and 2 over the number for the previous week. They comprise 5 from scarlet fever (scarlatina), 8 from influenza and its complications, 2 from whooping-cough, 1 from diphtheria, 2 from enteric fever, 1 from diarrhœa, and 2 from dysentery.

Thirty cases of scarlatina were admitted to hospital. Twenty-one scarlatina patients were discharged, 1 died, and 183 remained under treatment on Saturday, being 8 over the number in hospital at the close of the preceding week. This number does not include 16 convalescents at Beneavin, Glasnevin.

The number of cases of enteric fever admitted to hospital was 16, being 3 under the admissions in the preceding week. Twenty-four patients were discharged, 1 died, and 88 remained under treatment on Saturday, being 9 under the number in hospital on that day week.

The hospital admissions included also 6 cases of measles. Eight cases of that disease remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system, registered was 32, being equal to the number for the preceding week, but 6 under the average for the 16th week of the last ten years. The 32 deaths consist of 19 from bronchitis, 12 from pneumonia, and 1 from croup.

Meteorology.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ N., Long. 6° 15′ W., for the Month of April, 1898.

Mean Height of Barometer,	29·828 inches.
Maximal Height of Barometer (24th, 9 p.m.),	30·197 ,,
Minimal Height of Barometer (30th, 3 p.m.),	29·220 ,,
Mean Dry-bulb Temperature,	48·7°
Mean Wet-bulb Temperature,	45·5°.
Mean Dew-point Temperature,	42·2°.
Mean Elastic Force (Tension) of Aqueous Vapour,	·270 inch.
Mean Humidity,	79·5 per cent.
Highest Temperature in Shade (on 7th),	64·7°.
Lowest Temperature in Shade (on 5th),	33·4°.
Lowest Temperature on Grass (Radiation) (on 5th),	29·7°.
Mean Amount of Cloud,	57·0 per cent.
Rainfall (on 16 days),	2·666 inches.
Greatest Daily Rainfall (on 30th),	·956 inch.
General Directions of Wind,	W., S.W., S.

Remarks.

A mild, genial spring month, very favourable to vegetation. The heavy rains which fell on the 11th, 23rd, and 30th, made up 75 per cent. of the total precipitation of the month—2·003 inches out of 2·666 inches. A remarkable and sudden increase of temperature occurred between the 5th and 6th. At the close many forest trees were in full leaf.

In Dublin the arithmetical mean temperature (49·7°) was 2·0° above the average (47·7°); the mean dry-bulb readings at 9 a.m. and 9 p.m. were 48·7°. In the thirty-three years ending with 1897, April was coldest in 1879 (the cold year) (M. T.=44·5°), and warmest in 1893 (M. T.=51·4°). The month of April, 1893, was the warmest for at least 30 years.

The mean height of the barometer was 29·828 inches, or 0·022 inch below the average value for April—namely, 29·850 inches. The mercury rose to 30·197 inches at 9 p.m. of the 24th, and fell to 29·220 inches at 3 p.m. of the 30th. The observed range of atmospheric pressure was, therefore, not quite one inch—namely, ·977 inch.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 48·7°, or 7·3° above the

value for March, 1898. Using the formula, *Mean Temp.* = *Min.* + (*max.* — *min.* × ·476), the value is 49·4°, or 2·0° above the average mean temperature for April, calculated in the same way, in the twenty-five years, 1865–89, inclusive (47·4°). The arithmetical mean of the maximal and minimal readings was 49·7°, compared with a twenty-five years' (1865–1889, inclusive), average of 47·7°. On the 7th the thermometer in the screen rose to 64·7°—wind, S.S.W.; on the 5th the temperature fell to 33·4°—wind, S.S.E. The minimum on the grass was 29·7°, also on the 5th.

The rainfall was 2·666 inches, distributed over 16 days. The average rainfall for April in the twenty-five years, 1865–89, inclusive, was 2·055 inches, and the average number of rainy days was 15·2. The rainfall and the rainy days, therefore, were above the average. In 1877 the rainfall in April was very large—4·707 inches on 21 days; in 1882, also, 3·526 inches fell on 20 days, and in 1894, 3·123 inches on 20 days. On the other hand, in 1873, only ·498 inch was measured on 8 days; in 1870, only ·838 inch fell, also on 8 days; and in 1896, only ·883 inch on 16 days.

Fog was observed on the 5th, 18th, 22nd, 24th, and 25th. High winds were noted on 8 days, reaching the force of a gale on the 10th and 30th. Hail fell on the 10th. The temperature rose to or above 60° in the screen on 6 days. It only once failed to reach 50° (on the 30th). It never fell to 32° in the screen, and on only 2 nights did it fall below 32° on the grass. The mean lowest temperature on the grass was 40·2°, compared with 37·7° in 1897, 40·6° in 1896, 37·8° in 1895, 40·0° in 1894, 38·2° in 1893, 32·4° in 1892, 34·1° in 1891 and 1890, 34·4° in 1889, 34·6° in 1888, and 31·6° in 1887. Solar halos were seen on the 7th, 8th, 9th, and 25th, a lunar halo on the 1st.

The month opened with very favourable weather. The nights were sharp, but the thermometer rose in the shade to 53·6° on Friday, the 1st, and to 52·7° on Saturday, the 2nd. On the last-named day a new depression was approaching the N.W. of Ireland from the Atlantic.

The most remarkable feature in the weather of the week ended Saturday, the 9th, was the sudden bound into summer from winter which occurred on Wednesday, the 6th. At the beginning fresh westerly winds were blowing, accompanied by showers. At 8 a.m. of Monday a deep V-shaped subsidiary depression lay off the S.W. coast of Norway, and northerly winds were blowing over the British Islands. The sky was clear and the air was keen, although

hot sunshine prevailed. Sleet fell in Scotland, hail showers in the North of England. An area of high atmospheric pressure passed eastward across Ireland and England in the rear of the above-mentioned depression, with the result that a decided "chill" occurred in these countries on Monday night, the thermometer falling in the shade to 28° at Parsonstown, 33° in Dublin, 32° in London, 27° at Oxford, 25° at Cambridge, and 24° at Loughborough. The wind now shifted to S.S.E. in Ireland and a sudden rise of temperature took place, so that on Wednesday the thermometer reached 63·1° in the screen in Dublin—the highest since September 28th, 1897. On Thursday the maximum was 64·7°, and on Friday it was 63·0°. A depression on the night of the last-named day was followed by showers, westerly winds, and a lower temperature on Saturday. Solar halos were seen on each of the last three days. The mean height of the barometer was 29·904 inches, pressure varying from 30·125 inches at 9 a.m. of Tuesday (wind, S.S.E.) to 29·606 inches at 7 15 a.m. of Saturday (wind W.). The corrected mean temperature was 51·0°. The mean dry bulb reading at 9 a.m. and 9 p.m. was 50·3°. The screened thermometers fell to 33·4° on Tuesday, and rose to 64·7° on Thursday. The air was particularly dry on Good Friday. Rain fell on three days to the amount of ·103 inch, ·073 inch being measured on Saturday.

The weather of the week ended Saturday, the 16th, was of a distinctly changeable and unsettled type, but in the main favourable to both health and vegetation. Easter Day was very unsettled. Strong, squally S.W. winds and heavy showers of rain and hail prevailed in Ireland and parts of Great Britain, thunder and lightning being reported from Valentia Island and from Dublin, thunder only from York, and lightning from Yarmouth. These electrical disturbances were connected with a subsidiary depression which reached Denmark on Monday morning. Another subsidiary appeared off the South of Ireland at noon of Easter Monday, thence travelling eastward across England. It caused very wet, dull weather—·97 inch of rain being measured at York, ·76 inch at Liverpool, ·85 inch at Roche's Point, ·48 inch at Loughborough, and ·44 inch in Dublin. On Tuesday night a large primary depression passed northwards over the West of Ireland, giving a rainfall of one inch to Valentia and of half an inch to Parsonstown. The weather now became fair and bright, though at times showery, in Ireland, while a V-shaped depression passing across England produced wet weather in England on Thursday. On Friday heavy showers of rain and hail fell to the S.E. of Dublin,

but the weather remained very fine and dry in the city itself. Thunder and lightning occurred at Roche's Point, Cork, and in central England in the course of the day. Saturday also was most favourable. In Dublin the mean atmospheric pressure was 29·724 inches, the barometer falling to 29·364 inches at 2 30 p.m. of Sunday (wind, W.S.W.) and rising to 30·002 inches, at 9 a.m. of Saturday (wind, W.). The corrected mean temperature was 49·0°. The mean dry bulb temperature at 9 a.m. and 9 p.m. was 48·2°. On Sunday the shade thermometers registered 60·6°, on Tuesday they fell to 37·8°. The rainfall was ·666 inch on four days, ·439 inch being registered on Monday. The prevailing winds were westerly (S.W. to N.W.).

Changeable, but generally favourable, weather prevailed during the week ended Saturday, the 23rd. Curious troughs of relatively low atmospheric pressure advanced eastwards across Ireland on the nights of Sunday and Tuesday. But these V-shaped depressions filled up or dispersed when they reached Great Britain, after causing heavy rains in most parts of Ireland. The east coast near Dublin, however, received only moderate showers, which hastened spring vegetation in a wonderful way. The modification observed in the low pressure systems seemed to be caused by the persistent presence of an anticyclone over the extreme North of Europe, where also winter lingered—at Haparanda, on the Gulf of Bothnia, the night minima were 0°, 10°, 7°, 20°, 12°, 18°, and 10°, respectively—sufficiently low temperatures for the second half of April. The diurnal range of temperature at inland stations even in the British Isles was at times large—on Thursday night the thermometer fell to 43° at Parsonstown and 30° at Cambridge from maxima of 67° and 60° respectively. In Dublin the mean height of the barometer was 29·932 inches, pressure ranging from 29·591 inches at 9 a.m. of Monday (wind, S.S.E.) to 30·185 inches at 9 a.m. of Thursday (wind, N.N.W.). The corrected mean temperature was 50·2°. The mean dry bulb reading at 9 a.m. and 9 p m. was 49·2°. On Wednesday the screened thermometers rose to 60·6°, on Friday they fell to 41·5°. Rain fell on five days to the amount of ·787 inch, ·093 inch being measured on Monday and as much as ·608 inch on Saturday. The wind was variable, and light except on Sunday night and Monday forenoon, when it blew freshly from S.S.E.

In the week ended the 30th favourable but not settled weather prevailed until Saturday, when there was a violent rainstorm. On and after Tuesday rain fell copiously in Great Britain, and on

Saturday there was a heavy downpour in Ireland. Throughout the period an anticyclone was found over Scandinavia. On Monday and Tuesday this high pressure system spread south-westwards across the British Isles, and fine but cool and somewhat foggy or cloudy weather prevailed. Throughout the greater part of Monday a well-defined solar halo was visible. On Tuesday morning a large though shallow area of low atmospheric pressure appeared over the Bay of Biscay and Central France. This system moved northwards to the South of England, growing deeper as it advanced. It led to a thunderstorm in Kent and to plentiful rainfalls in the S. and E. of England, and later on in Scotland also. On Friday morning a still larger and deeper depression appeared off the S.W. of Ireland, in which country rain began to fall. Saturday was very inclement, and a severe rainstorm occurred in the Dublin district, ·929 inch falling between 9 a.m. and 4 p.m. The wind was first E.S.E., then N.E., N., and finally W. on that day. In Dublin the mean height of the barometer was 29·736 inches, pressure rising to 30·197 inches at 9 p.m. of Sunday (wind, calm) and falling to 29·220 inches about 3 p.m. of Saturday (wind, W.). The corrected mean temperature was 48·5°. The mean dry bulb reading at 9 a.m. and 9 p.m. was 47·9°. On Monday the screened thermometers fell to 38·7°, on Thursday they rose to 57·7°. Rain fell on three days to the amount of 1·099 inches, ·956 inch being measured on Saturday. E. and S.E. winds prevailed.

The rainfall in Dublin during the four months ending April 30th amounted to 7·236 inches on 64 days, compared with 9·554 inches on 79 days in 1897, 5·781 inches on 63 days in 1896, 10·233 inches on 65 days in 1895, 9·151 inches on 73 days in 1894, 6·242 inches on 56 days in 1893, 5·922 inches on 61 days in 1892, only 3·203 inches on 46 days in 1891, and a twenty-five years' average of 8·466 inches on 66·2 days.

At Knockdolian, Greystones, Co. Wicklow, the rainfall amounted to 4·145 inches on 15 days. The heaviest falls in 24 hours were ·760 inch on the 30th and ·660 inch on the 11th. The total rainfall in 1898, up to April 30th, was 8·890 inches on 56 days, compared with 13·080 inches on 80 days in 1897, 5·686 inches on 50 days in 1896, 12·570 inches on 54 days in 1895, 12·456 inches on 70 days in 1894, and 8·530 inches on 54 days in 1893.

At Cloneevin, Killiney, Co. Dublin, 3·13 inches of rain fell on 17 days. The maximal fall in 24 hours was 1·04 inches on the 30th. The average rainfall in April of the twelve years, 1885–96,

was 1·648 inches on 13·2 days. Since January 1, 1898, 7·74 inches of rain fell at this station on 61 days, compared with 10·36 inches on 83 days in 1897, 5·27 inches on 55 days in 1896, 11·28 inches on 66 days in 1895, 9·09 inches on 74 days in 1894, and 6·94 inches on 57 days in 1893.

At the National Hospital for Consumption, Newcastle, Co. Wicklow, the rainfall was 4·441 inches on 15 days, compared with 3·406 inches on 19 days in April, 1897. On the 11th ·592 inch was measured; on the 23rd, ·620 inch; and on the 30th, 1·270 inches. The maximal temperature in the shade was 61·0° on the 7th. The minimal temperature in the screen was 32·8° on the 5th. At this climatological station 9·208 inches of rain fell on 55 days up to April 30th, 1898, compared with 13·492 inches on 76 days in the first four months of 1897.

THE SINS OF THE PESSARY.

F. L. Neugebauer has collected 364 cases of injuries from pessaries, and states that in 112 there was perforation of a neighbouring organ, the rest due to abuse, neglect, being forgotten, &c.—*Wien. klin. Woch.*

LENGTH OF TIME CARBON DIOXIDE REMAINS IN THE BLOOD AFTER INTOXICATION.

Experimental research shows that forty-one minutes is the longest period, and sixteen the shortest, in which carbon dioxide can be detected in the blood of animals exposed to its toxic action.—*Deutsche. med. Woch.*

INFILTRATION OF THE NERVE CELLS BY LEUCOCYTES.

In the investigation of the tissues of some old dogs it was found that the leucocytes had penetrated into the interior of the nerve cells, especially those of the ganglia of the posterior roots, producing peculiar alterations in the neuron as the leucocyte gradually invaded and destroyed the nerve cell.—*Presse Méd.*

EFFECTS OF THE X-RAYS ON OSMOSIS.

In some recent experiments the ascent of the liquid was checked almost entirely by the action of the rays from the Crooke's tube. This effect on the osmosis may be the explanation of the alterations produced in the tissues by the X-ray.—*Presse Méd.*

PERISCOPE.

A BIFID NOSE.

Dr. Stewart (*Jour. Laryn.*) describes a case of bifid nose occurring in a patient twenty-five years old. The patient stated that when a baby a tumour was removed from his nose. The case was not one of duplication of the organ. The mesial nasal process is bilateral in character. Naturally this groove was obliterated by the approximation and coalescence of the lateral portions. In this case the growth of a cyst between the lateral portions prevented the coalescence, and produced the bifid deformity.

EUSTRONGYLUS GIGAS.

Dr. R. J. Allen reports a case of recurring and profuse hæmaturia in a man eighty-seven years old (*Australasian Med. Gaz.*), occasioned by *Eustrongylus gigas*. The specimen, which was found in the urine, was $5\frac{1}{2}$ inches long, and frayed out at the attenuated extremities. This parasite is exceedingly rare in man. Davaine ("Traité des Entozoaires") found only seven cases in medical literature. Since then Dr. R. Cameron (*Lancet*, 1887) reported the passing of one by a boy seven years old, and M. Magueur reported (*J. de M. de Bordeaux*, 1888) the passing of a male specimen by a child only two years old. Although the eustrongylus has been recognised as a human parasite, its history was not made known until J. G. Bremser published his "Traité Zoological," in which he gives some beautiful copperplate engravings of the male and female parasites. Fifty years afterwards the engravings and descriptive letterpress, with some fresh matter, were published by Küchenmeister in his "Manual of Parasites," a translation of which was published by the Sydenham Society in 1858. Bremser regards the following cases of eustrongylus gigas as undoubtedly true:—1. That of the Archduke Ernest of Austria, who died in 1595, as Governor of the Netherlands, and in whose kidneys Hugo Grotius found a stone and a still living worm. 2. The case of Ruysch, who was already acquainted with this worm in dogs. 3. The case of Blasius, who found one in the kidneys of an old man. 4. The case of Alberch, who saw a soldier, after seven days' retention of urine, pass a worm three fingers long, and of the thickness of a quill, through the urethra, with immediate relief. 5. The case of Raisin, in which a worm 3 inches long passed from

a man fifty years old, after two years of renal colic, with bloody urine. 6. The similar case of Duchateau. 7. The case of Rhodius, who saw a round living worm, of a span long, passed with the urine, without any previous or subsequent disorder, from a man prostrated by a violent fever, on the fifth day of his illness. Cases 8–12 are those of Chapotain, Monceau, Haller, Renner, and Schenk. 13. The case of Hähne, in which a case occurred in the thoracic cavity. 14. The case of Moublet. A boy who had been freed from a calculus in the bladder, in his third year, by Moublet, was attacked in his tenth year by a violently painful swelling in the region of his groins, with scanty secretion of urine. Much pus flowed from the opened tumour, and the wound healed up. The disorder was renewed repeatedly for three years, and the operation was repeated. At last a worm five inches long, and of the thickness of a quill, came out of the wound, and finally a second worm, four inches long, but then complete retention of the urine occurred, until two similar worms passed shortly after each other, and a perfect cure was the result. The female worm sometimes attains to a great length. Küchenmeister states that a specimen in his possession was nineteen inches long, and Ebstein states that a specimen found in a dog measured twenty-five inches.

DEATHS UNDER ETHER.

In a paper read before the Toronto Medical Society, Dr. Oldright (*Canadian Practitioner*) states:—Henry M. Lyman, of Chicago, an advocate of ether, says that the risks from ether increase with age, on account of the tendency to bronchial catarrh, to a degree which is not conspicuous with the more potent agent chloroform, and cites cases of œdema with lingering death from the administration of ether, one of œdema of the lungs and pleuræ, operation tenotomy, administration for twenty minutes, amount 3 oz., becoming conscious and dying two hours later; another dying four hours after cessation of administration, the *post-mortem* examination revealing œdema of the membranes of the brain and of the lungs.

SUDDEN DEATH FROM RUPTURE OF A HYDATID CYST INTO THE RIGHT AURICLE.

At a meeting of the New South Wales Medical Association (reported in the *Australasian Medical Gazette*), Dr. Jamieson, of Sydney, read the following paper:—"On October 18th, 1897, I received a message from the City Coroner asking me to proceed to

Redfern, and there make an investigation into the cause of death of a boy aged nine years, who, whilst in the midst of apparently good health, had suddenly expired. On my arrival at the house of the parents, in reply to my queries with reference to the boy's antecedents, I received the following statement from the father :—'The boy had always enjoyed the best of health; was nine years of age, and had never, as far as the father knew, in any way complained of ill health. He had never been laid up a single day. On the day of his death he was playing with some of his schoolmates all the afternoon; about six o'clock he came home and had his tea. Shortly afterwards he was taken suddenly ill, and became very breathless and livid, and in a short time died.' *Post-mortem.*—I found the cause of death to have been the rupture of a hydatid cyst, about the size of a small orange, into the right auricle. On opening the right side of the heart, the cavities of the right auricle and right ventricle were found to be filled with daughter cysts, and a large daughter cyst was also found completely blocking the right pulmonary artery. A number of other cysts, unruptured, were also found beneath the epicardium, two of these being in close relation to the left ventricle. Otherwise the body showed no evidence of disease. The boy was a native of Redfern, and had never been out of Sydney. A sister had been operated on some years previously for hydatids of the liver." Dr. Jenkins said he exhibited a somewhat similar specimen at a Branch meeting some ten years ago. Dr. Guy Warren sent the specimen. The man had had no previous symptoms; he was digging in the garden, and fell dead. The *post-mortem* examination showed a similar condition as that described by Dr. Jamieson.

IDIOSYNCRASY.

Dr. Oldright, of Toronto, states that the celebrated *prima donna*, Jenny Lind, would almost faint from the smell of a rose thrown on the stage.

BRONCHO-PNEUMONIA PROPHYLACTICS.

Dr. Gaston-Lyon recommends a perfect cleansing of the nose, and afterwards the painting of each nostril with the following pigments :—Sweet oil of almonds, 40 parts; menthol, 1 part.—Mix.—*Revue de Therapeutique.*

DYSPEPSIA FOLLOWING NASAL CATARRH.

In a contribution to the *St. Louis M. and S. Journal*, Dr. Rumbold draws attention to the effect of the swallowed nasal secretion on

the stomach. Like its companion, nervous prostration, the disease thus produced in the stomach is always worse in the spring and autumn—that is, during the seasons when colds in the head are most frequently taken.

FOREIGN BODY IN THE URETHRA.

Dr. Guinard (*Bull. Soc. Ann., Paris*)—A man, twenty-seven years of age, introduced into his urethra a long hairpin, the extremity of which within the urethra was curved, and presented a free extremity pointing to the orifice of the urethra. An external urethrotomy was performed, and the patient made a good recovery.

STOMATITIS FROM THE USE OF PHENAZONE.

M. Dalche (*Soc. Méd. des Hôpitaux*) reports a case of stomatitis following on a dose of phenazone. The unpleasant effects were quickly relieved by the use of a boric acid mouth wash. M. Dalche said this was only one of some similar cases that had occurred in his practice from the use of the drug.

VOMITING FOR EIGHTEEN YEARS—ABDOMINAL SECTION—CURE.

Dr. Naylor, Hobart, Tasmania, reports the following in the *Australasian M. Gazette*:—Miss S., native of Tasmania, aged 44 years, came under my treatment about ten months ago. She told me she had been vomiting all her food at irregular intervals daily for eighteen years. No neurotic history anywhere in the family. Lately the vomiting had been more frequent. I put her to bed for three months, and fed her systematically with peptonised food, washing her stomach daily with the siphon tube. I suggested to herself and relatives that there was an obstruction at the further end of her stomach. After three months I let her go home, and advised her to continue the washing and to take the bismuth as before. At or about the middle of September I saw her again, and I noticed she was much thinner. At this time, through her attenuated abdominal wall, I thought I felt an indurated pylorus. I now made preparations for an abdominal section. I opened up the abdomen in the middle line for five inches. After opening the parietal peritoneum, I introduced my hand into the abdomen and felt for the pylorus, but found it deep down and firmly adherent to the liver; on examining the stomach I found it was empty, flaccid and not at all enlarged. I tried to draw the stomach out into the wound, but could get it only slightly forward, and found it tied down by adhesions to the bowel below. I separated these adhesions and liberated the greater part of the

stomach, and got the greater portion now fairly into view, but could not move the pyloric end, as it was firmly adherent to the under-surface of the liver. I opened the stomach by a vertical incision about an inch and a quarter long. I then passed my finger along towards the pylorus and through it into the duodenum without finding the trace of a stricture. I have no doubt that the real cause of the sickness of such an intractable nature was the existence of the adhesions, part of which I relieved; at any rate, the result justifies me in thinking so. This lady would undoubtedly have died of starvation if I had not made a mistaken diagnosis and decided to do a pyloroplasty.

ABSCESS OF THYROID COMPLICATING PLEURISY.

Herbert C. Barclay, M.D., F.R.C.S. Ed. (*Aust. Medical Gazette*), draws attention to a case of this disease. The patient was a tall, well-built man, 37 years of age. At the first examination a goîtrous neck was noticed, but it did not call for special attention. The physical signs were almost *nil*. He had great pain in the right lower chest, aggravated by a deep breath. No friction sounds were audible, and the dulness was but slightly marked. His chest was strapped, and this eased the pain, which was otherwise constant. On the morning of the third day he got *suddenly* worse. Difficulty in breathing became extreme; he was cyanosed, perspiration poured off his face, and his hands were blue; pulse very feeble and rapid, while a swelling on the left side of the neck, the size of a fist and well defined, and connected with the thyroid (as judged by deglutition), had appeared in the course of an hour, the superficial veins being markedly distended. He seemed practically moribund. On the third day of this attack some swellings of the thyroid occurred, but not nearly so marked as previously, and though his pulse was watched half-hourly all night, he collapsed suddenly, and died in the course of half an hour. A *post-mortem* revealed generalised pleurisy over both lungs. Most of the pleura was covered with yellow, chamois-leather-like lymph in a thick layer. At the lower part of the right cavity, covered in by surrounding adhesions, was a pocket of pus containing about 3i. to 3ii. in all. This was the site of the constant severe pain. The thyroid was greatly enlarged, one side of it being diffluent and verging on pus, the other side being represented by an abscess sac, from which fluid spurted on section. The pus contained streptococci in abundance, but diplococci were not to be seen.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

The Artificial Feeding of Infants.

The Aylesbury Dairy Company, Limited, 31 St. Petersburg-place, Bayswater, London, W., sixteen years ago undertook the preparation of humanised milk at the request of several members of the medical profession, and made it correspond in composition with the average human milk. Though, in the majority of instances, this humanised milk was retained and well digested, there occurred from time to time cases in which it was not so successful; in some of these cases, at the request of the medical attendant, the Company prepared a special milk of a composition suited to the particular needs of the infant.

About three years ago the Company adopted the method of preparing two strengths of humanised milk, No. 1 containing about 1·4 per cent. of proteids, and No. 2 containing 2·2 per cent., the other constituents being kept at about the average found in human milk. The result was very gratifying.

The Company now propose to amplify the idea which led to the preparation of two strengths of humanised milk, and have opened a new department, in which humanised milk is dispensed from physicians' prescriptions.

It has been arranged to prepare milk containing any prescribed percentage of fat, milk sugar, and proteids; the proteids may be either those normal to cow's milk (*i.e.*, casein and albumen in the proportion of 7 to 1), or modified by a proteolysing (not peptonising) process so as to be more digestible and to give a more finely divided curd when acted on by the milk curdling enzyme of the stomach. The reaction to litmus-paper may be either the normal amphioteric one of cow's milk or the faintly alkaline one of human milk.

Within the limits of their London delivery the Company can, if desired, supply the milk in a Pasteurised condition, the amount prescribed for each meal being contained in a separate bottle. It is, however, safer to use the milk sterilised by their ordinary process and supplied in their patent vacuum stoppered bottles.

Outside the limits of their delivery they can supply it only in the sterilised condition; a quantity sufficient for each meal can

be supplied in a separate bottle, or it may be put up in 10 oz., 20 oz., and 40 oz. bottles.

When milk is sent long distances by rail, especially in the summer, a portion of the cream is liable to be churned into butter by the shaking received during transit. This, though not diminishing the percentage of fat in the milk to any great extent, causes inconvenience, and if the fat be not removed it is difficult of digestion. To obviate this, the Company recommend the use of their new system. They supply—

(*a*). A small bottle containing cream in which the total amount of fat is $\frac{3}{4}$oz. (or any definite amount).

(*b*). A bottle containing separated milk, or proteolysed milk (as prescribed).

(*c*). A bottle containing a solution of milk sugar in distilled water, together with any alkali, &c., prescribed.

The quantities in (*b*) and (*c*) can be adjusted, so that on mixing the entire contents of the three bottles one pint of humanised milk will result, or the Company can supply them containing 10 ozs., so that the medical adviser may, if he thinks fit, vary the composition by directing that the contents of (*a*) be mixed with measured quantities of (*b*) and (*c*). They issue to the physician a card specifying the composition of (*b*) and (*c*), together with a table of the quantities to be added, to save calculation.

The Company are prepared, in addition, to undertake the analysis, free of charge, of any samples of human milk that may be submitted to them by medical men, with a view to guiding them in their course of treatment.

Finally, the Company draw attention to the facts—

(1). That all their farms are periodically inspected by the Medical Officer of Health for the district.

(2). That they are provided with water supplies which have been approved both by the Medical Officer of Health and by their Analyst.

(3). That in the case of suspicion of infectious disease at any farm, the milk supply from that farm is immediately stopped.

In Memoriam.

SAMUEL GORDON, M.A., M.D. Univ. Dubl.;

EX-PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS OF IRELAND,

AND OF

THE ROYAL ACADEMY OF MEDICINE IN IRELAND.

NOT for many years has a member of the medical profession passed away amid such tokens of widespread sorrow as those which followed SAMUEL GORDON to his last resting-place. Full of years and honours he "fell asleep" on Friday, April 29, 1898, in the eighty-third year of his age.

On Thursday, March 31, DR. GORDON was in his wonted excellent health and lively spirits. Early next morning he was attacked with rigors, vomiting, and a transitory diarrhœa. Notwithstanding, he went about his work as usual until his strength failed, and he took to bed in the afternoon, complaining of intense pain in the left side of the chest. In a few days physical signs of an acute left pleuro-pneumonia showed themselves. From this attack the patient rallied to some extent, so that his many friends rejoiced to think that, after all, his life might be prolonged. Complete anorexia, however, was followed by extreme prostration, and life gradually ebbed away, the end coming just four weeks after the onset of the illness.

SAMUEL GORDON was born on January 19, 1816. He was the fourth son of Mr. Samuel Gordon, of Spring Gardens, Clonmel, Co. Tipperary, by his wife, Jane, daughter of Mr. Keily, of Strancally Castle, Co. Waterford. He entered Trinity College, Dublin, at a very early age, and graduated as B.A. of the University of Dublin in 1837, proceeding to the degree of M.A. a few years later. In 1843 he obtained the Letters Testimonial of the Royal College of Surgeons in Ireland, of which body he was co-opted a Fellow on January 7, 1845. He took the degree of M.B. in the University of Dublin in 1844, and in 1877 he became M.D., *stipendiis condonatis*. In 1847 GORDON was appointed Physician to the House of Industry Hospitals, in which he had as an undergraduate served as Clinical Clerk to Dr. (afterwards Sir Dominic) Corrigan.

In Memoriam.

The earlier years of GORDON's professional life were devoted to the practice of surgery, in which he showed no little proficiency and skill. As time passed by, however, he resolved to turn his attention exclusively to medicine, and so he became Licentiate of the Royal College of Physicians of Ireland on May 1, 1860, being elected a Fellow on October 6th, 1865. From October, 1875, to October, 1878, he filled the Presidential Chair of the College with great distinction.

DR. GORDON in succession was connected as Lecturer with the Cecilia-street, Steevens' Hospital, and Carmichael Schools of Medicine. He in turn became President of the Carmichael College of Medicine, and also President of the Pathological Society of Dublin. He was elected President of the Royal Academy of Medicine in Ireland in 1888, and subsequently he served as President of the Royal Zoological Society of Ireland. In addition to his appointment in the House of Industry Hospitals, DR. GORDON was Physician to the King's Blue-coat Hospital, and St. Patrick's Hospital for the Insane. He was also a Consulting Physician to the Coombe Lying-in Hospital.

For several years GORDON was Editor of the *Dublin Hospital Gazette*, and he contributed many valuable papers to that journal. In the pages of the *Dublin Journal of Medical Science* several important communications from his pen appeared from time to time. The chief of these were on Fevers and their Complications, and the Treatment of certain forms of Pneumonia by Quinine in large doses.

DR. GORDON married Sophia Louisa, daughter of the late Thomas Montgomery, Captain in the Royal Navy. By her he leaves one son, Dr. Samuel Thomas Gordon, F.R.C.P.I., Surgeon to the Royal Irish Constabulary, and nine daughters. Every member of his family watched by his bedside during his fatal illness.

A skilful and trusted physician of vast experience, DR. GORDON played an honourable part in the history of Medicine in Dublin for many years. His genial, kindly, and sympathetic presence will be sorely missed in the sick room. In private and social life he filled a no less conspicuous position. An excellent *raconteur*, he never told a story which inflicted a rankling wound or hurt the tenderest susceptibility of his hearers. A trusted and faithful friend, he passed away in a ripe old age—loving and beloved—universally respected and mourned by all who had the privilege of knowing him.

J. W. M.

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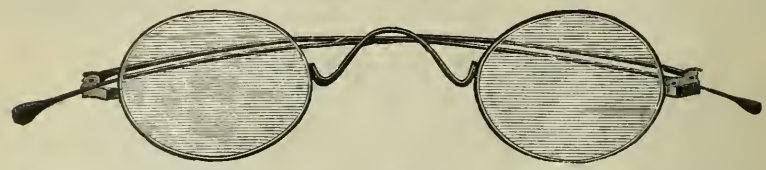

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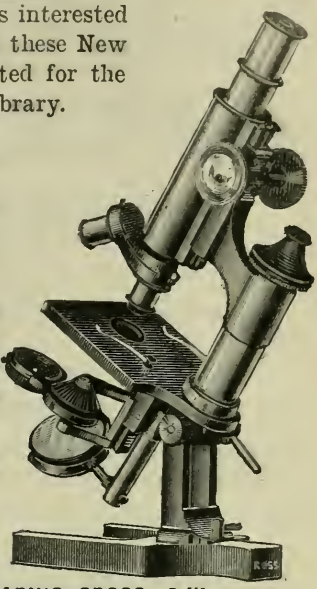

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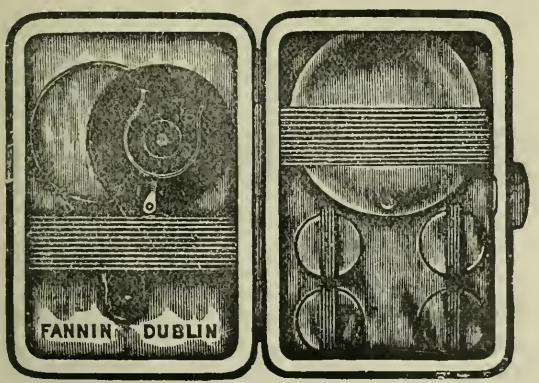

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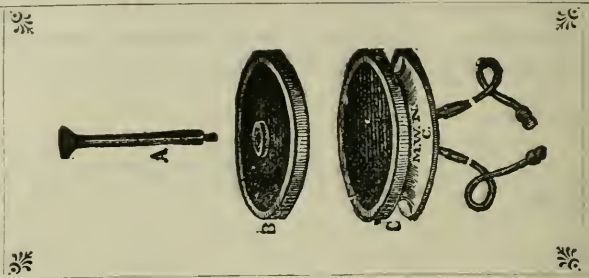

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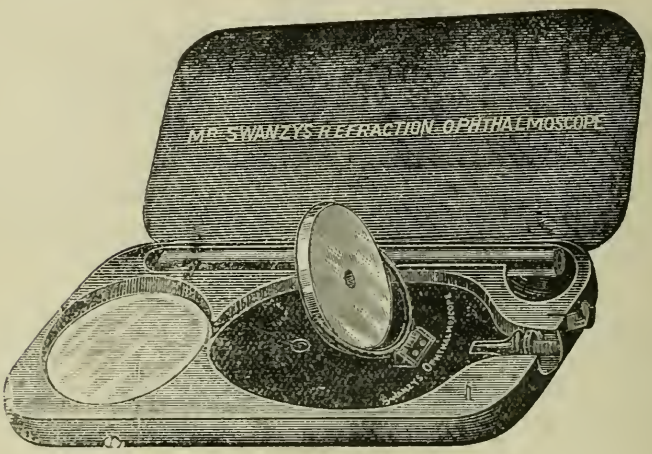

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